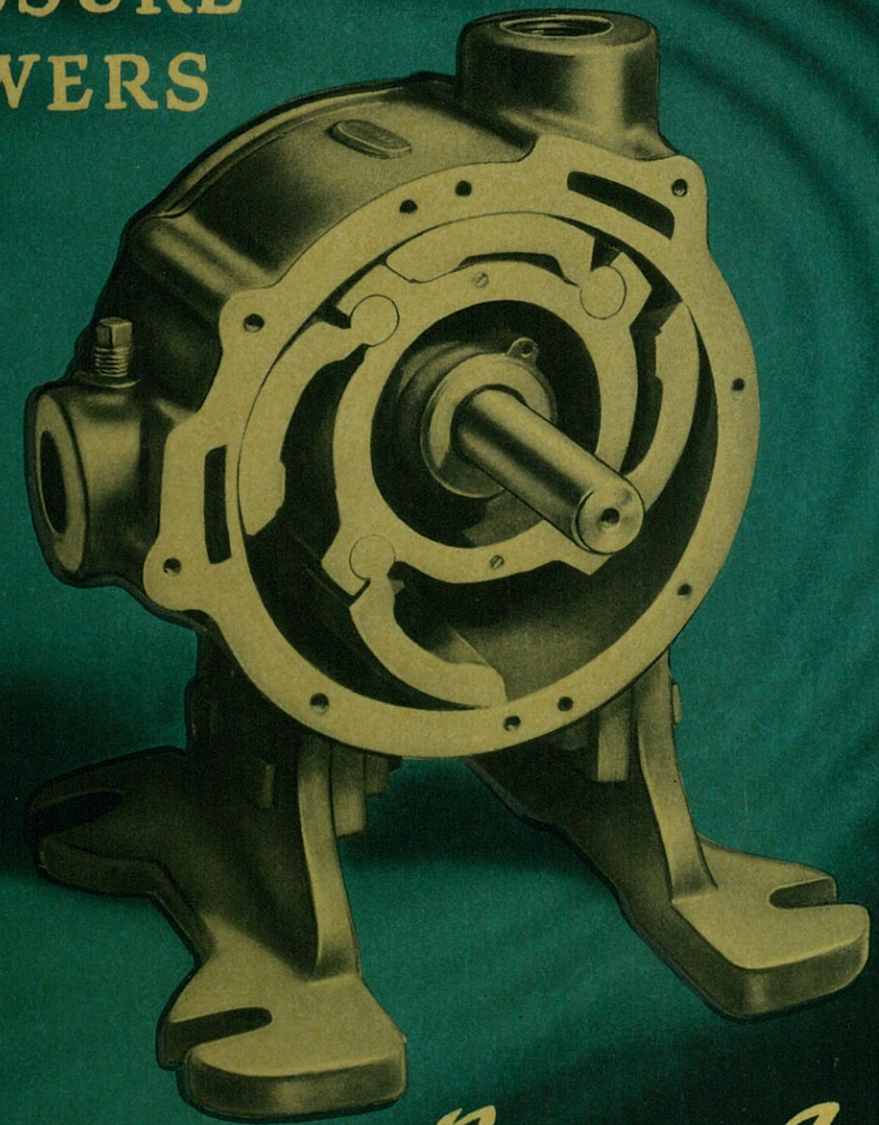


ROTARY  
PATENTED  
VACUUM  
*Pumps*

PRESSURE  
BLOWERS



*Leiman Bros., Inc.*

NEWARK NEW JERSEY



# LEIMAN BROS. ROTARY POSITIVE VACUUM PUMPS

PATENTED

## PRESSURE BLOWERS GAS PUMPS • AIR MOTORS 4 WING TYPE

20 in. Vacuum—10 lbs. Pressure

The interior construction of Leiman Bros. Patented Rotary Air Pressure, Gas and Vacuum Pumps and air motors is so arranged that the wings take up their own wear. They wear in conformity, and are always in perfect contact with the cylinder however old the machines may be. The bearing surfaces of both the wings and cylinder become very smooth and glassy-like in use.

This results in the highest efficiency, and they are the only pumps of their kind that will maintain this efficiency after long continued use. The small size of the piston makes the air chamber much larger, and the capacity greater than that of any other pump of the same size now on the market.

Many concerns are still using the old style machines, which are not alone cumbersome and noisy, but the high speed necessary to get results requires considerable power. They are also a constant source of annoyance and expense. In many cases our small rotary patented air pressure, gas and vacuum pumps will do all this work most efficiently and at a great saving of power, time and trouble.

The wings are attached to the piston by a hinge-like device producing a very easy action, and by the rotating motion of the machine they are kept in constant contact with the inner cylinder wall. Each wing as it reaches the top is kept close to the inner cylinder wall by a pressure stud, thus preventing the air from passing back into the machine, insuring a perfect compression or positive vacuum at all times.

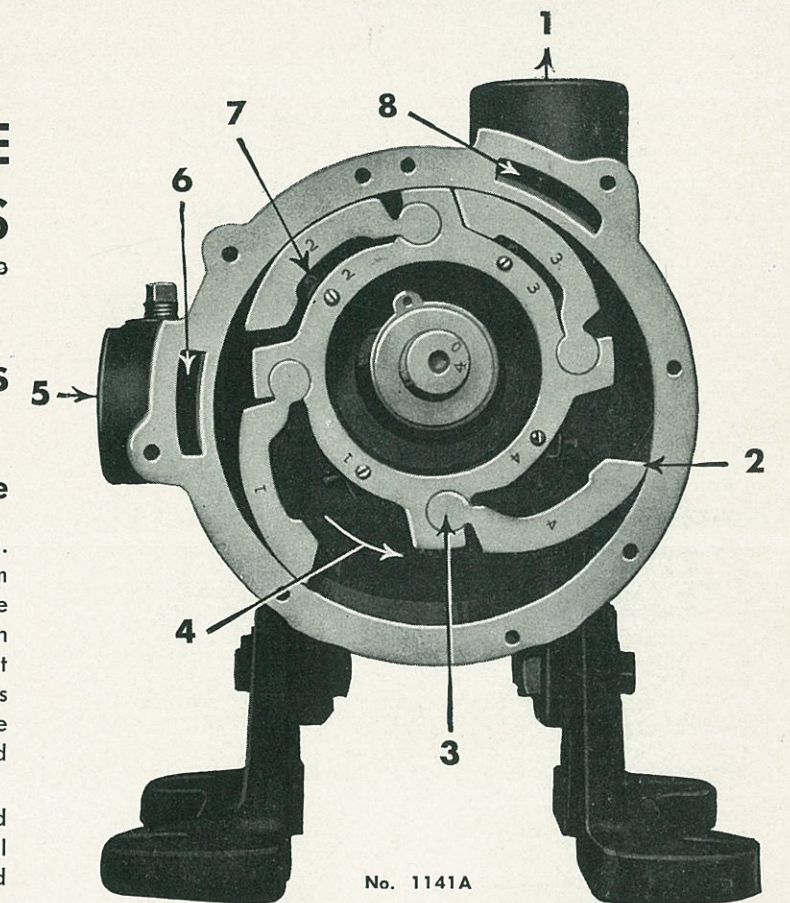
### SMOOTH, UNBROKEN CYLINDER RACE

The new side ports are the slots shown in the rim of the cylinder near the top. The air entering the inlet port of the machine enters the cylinder air space through this intake slot and through a by-pass in the cylinder-head on the side of the machine. The same thing happens at the other port or the outlet as the air passes out through the other slot shown.

This, then, does away with the necessity of having any opening, either intake or outlet directly through the surface of the curved cylinder race, giving a smooth, unbroken surface, resulting in quietness of operation, unvarying pressure in air delivery and extremely even, positive vacuum.

### CYLINDER HEADS

The cylinder heads are ground with the greatest care so that they will fit snugly to the edges of the wings and to the piston sides and no gaskets or other packing are used. This is one of the most important parts of the fitting inasmuch as air pressure is easily lost by improper fitting here and so, while it costs a great deal in time and consequently in money it is a most necessary operation and it is due to the great care exercised by us in this and other fitting work that such a high degree of efficiency is reached with these pumps.



1—OUTLET threaded for standard iron pipe.

2—Wing and cylinder surfaces become hard and glassy-like, insuring a perfect fit and positive pressure or vacuum. No composition tips to require renewal frequently.

3—The easy-action hinge enables wing to open and close, thus becoming wear compensating by the action of centrifugal force.

4—Direction of rotation showing how extended wing scoops up the air admitted at inlet, each revolution carrying it around to the outlet.

5—INLET threaded for standard iron pipe.

6—Air coming in at inlet at side comes through this slot into cylinder head by-pass and thence into the cylinder. No opening in curved inner surface of cylinder means quiet operation.

7—Enclosed stud in piston holds wing close to cylinder at top.

8—Air from cylinder through by-pass in cylinder head enters this slot on its way to the outlet above. No opening in curved inner surface of cylinder means quiet operation.

LEIMAN BROS. INC. • NEWARK, N. J.



# LEIMAN BROS. PATENTED ROTARY POSITIVE VACUUM PUMPS

**PRESSURE BLOWERS  
GAS PUMPS • AIR MOTORS**

## 2 WING TYPE

**29 in. Vacuum — 25 lbs. Pressure**

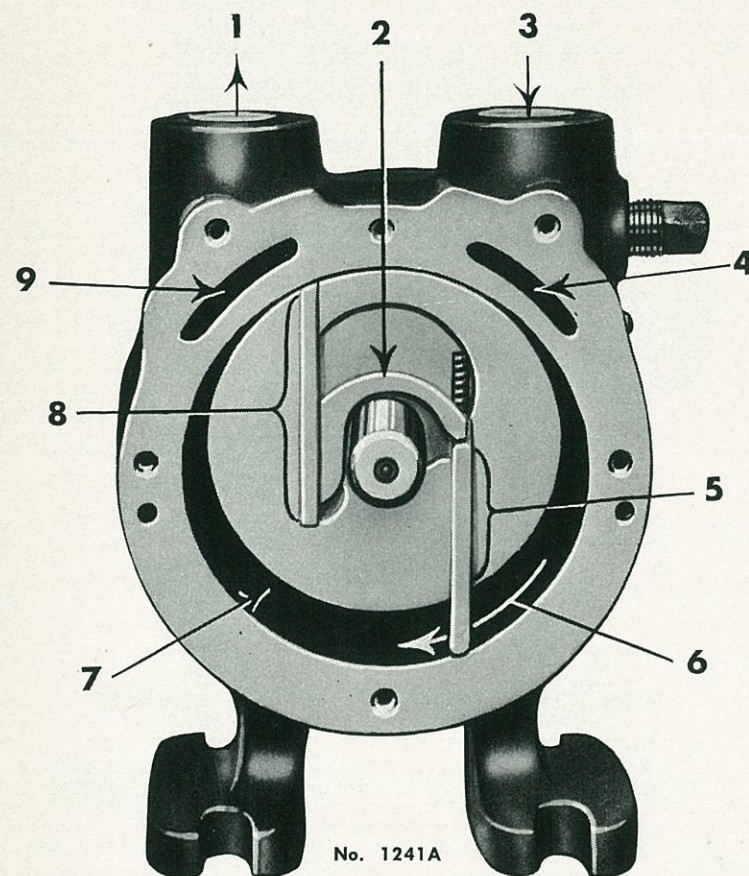
In Leiman Bros. Rotary Patented Air Pressure, Gas and Vacuum Pumps and air motors of the two-wing type the extra long blades or wings are made with the purpose of giving them an ample body or bearing surface for fitting into the extra long wing slots.

These extra long wings, therefore, have a good substantial support or leverage as they emerge from the piston to meet the internal curved wall of the cylinder.

Notice how little of the length of each blade extends out of the piston slot even at its greatest extension and how much still remains in the piston, making an unusually long bearing and giving rigidity. This assures long life.

These long bearing surfaces seal up the air, preventing its escape through back leakage, insuring positive delivery of air at the outlet, however high the pressure may be, and preventing chattering, vibration or variation of air delivery or pressure.

Where vacuum is used this positive seal between the wings and the wing slot bearings increases the strength of the vacuum, making it steadier and more positive in every way.



1—OUTLET threaded for standard iron pipe.

2—The Patented Automatic Wing Adjuster.

3—INLET threaded for standard iron pipe.

4—Air coming in at inlet at top passes through this slot into piston head by-pass and thence into the cylinder. No opening in curved inner surface of cylinder means quiet operation.

5—The large proportion of wing which always remains in piston slot gives firm bearing and eliminates chattering and fluctuation of air delivery or vacuum.

6—Direction of rotation combined with firm, extra long wing bearing in piston slot and offset of wings from shaft centre means easy, noiseless operation.

7—Large proportional air space makes it possible to use a small, compact machine.

8—See how the wing offset from the shaft centre has extra long slot in piston for firm bearing.

9—Air from cylinder through by-pass in cylinder head enters this slot on its way to the outlet above. No opening in curved inner surface of cylinder means quiet operation.

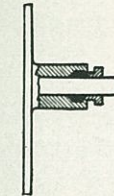
## THE AUTOMATIC WING ADJUSTER

The quiet automatic wing adjuster is the hook-shaped or curved lever connection shown attached to one wing and operating as the piston revolves in the cylinder, to adjust automatically or push the wings out to meet the wall of the cylinder. In action the wings automatically adjust themselves in and out of the piston by means of centrifugal force combined with the action of this quiet automatic adjusting lever which imparts a smooth, easy, quiet movement to the wings as they revolve, maintaining perfect and positive contact with the inner race or curved surface of the cylinder.

It is impossible for the wings in these pumps to stick, bind or otherwise vary from this smooth, quiet easy action which is made possible only by the use of this unique, patented, automatic wing adjusting lever.

**LEIMAN BROS. INC. • NEWARK, N. J.**

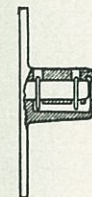
## STUFFING BOX OR GAS TIGHT BEARINGS



No. 1341A

When the machines are used for pumping or boosting gas or where the highest air pressure or vacuum is required we furnish this type of bearing having an adjustable nut and packing gland on the shaft of the pulley side. The opposite side of the machine then has a closed up or blind bearing.

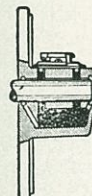
## RING OILING BEARINGS



No. 1341B

The shaft bearings are furnished with a double ring oiling device in the large size pumps for the lower degrees of air pressure or vacuum. The oil well is filled with machine oil and the rings on the shaft, as the latter revolves, dip into the oil carrying it up on the shaft thus insuring a well lubricated bearing and consequent easy operation.

## WOOL YARN BEARINGS



No. 1341C

Most all sizes of Leiman Bros. air pumps except when used for the highest degrees of air pressure or vacuum are fitted with our latest type wool yarn packed bearing providing ample lubrication for many months of continuous service. The wool also filters the oil preventing any foreign matter from reaching the polished bearing and shaft surfaces.

## AIR PRESSURE AND VACUUM

Air—either pressure or suction—will do many things which have been done heretofore by mechanical means—often doing it better, more smoothly and cheaper.

Air pressure (1 oz. to 25 lbs.) air vacuum (1 oz. to 29 inches mercury or more) or suction will often do the work cheaper and better than old fashioned mechanical devices now being used.

## SLOW SPEEDS—LITTLE POWER

Leiman Bros. Rotary Patented Air Pressure, Gas and Vacuum Pumps and air motors run at slow speeds and being simply constructed with few working parts, they require very little more power for their operation than is actually required for simply compressing or evacuating the air. In other words they deliver more air at a higher pressure or create a higher vacuum within the range of a rotary machine with a smaller expenditure of power than any other machines known.

The standard speeds are from 1750 R.P.M. for the smallest to 200 R.P.M. for the largest sizes. If more air is required the right thing to do is to get a larger

machine and not to increase the speed of the machine you have. If you do you will most likely cause breakage of the interior working parts because increased speed places more strain on these parts than they are designed to carry. In any case you will overload your motor, overheat the pump and cause undue noise.

## REGULATING FLOW AND PRESSURE OF AIR

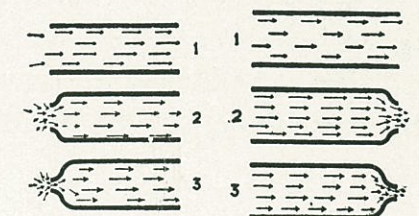
The regulation of the air flow, pressure and vacuum, is provided for in our weighted pressure relief valves, spring valves for both pressure and vacuum and our flat diaphragm pressure regulator which may be used for air and gas and manually operated valves. These valves may be so regulated that when the air pressure or vacuum, as well as gas pressure in the case of those valves especially designed for gas work, reaches the predetermined degree for which each of them may be set they give relief to the pump preventing unnecessary hard running and heating of both the pumps and the motors.

## THE VACUUM OR PRESSURE IS CONTROLLED BY THE SIZE OF THE INLET OR OUTLET

No. 1 in each of the diagrams shows a volume of air passing freely through a pipe creating neither vacuum in the one case nor pressure in the other.

No. 2 in the first diagram shows the same volume of air being drawn through a reduced opening thus creating vacuum and in the second diagram being forced through a reduced outlet creating pressure.

No. 3 in each case shows the inlet and the outlet still further reduced, thus further increasing the vacuum and the pressure.



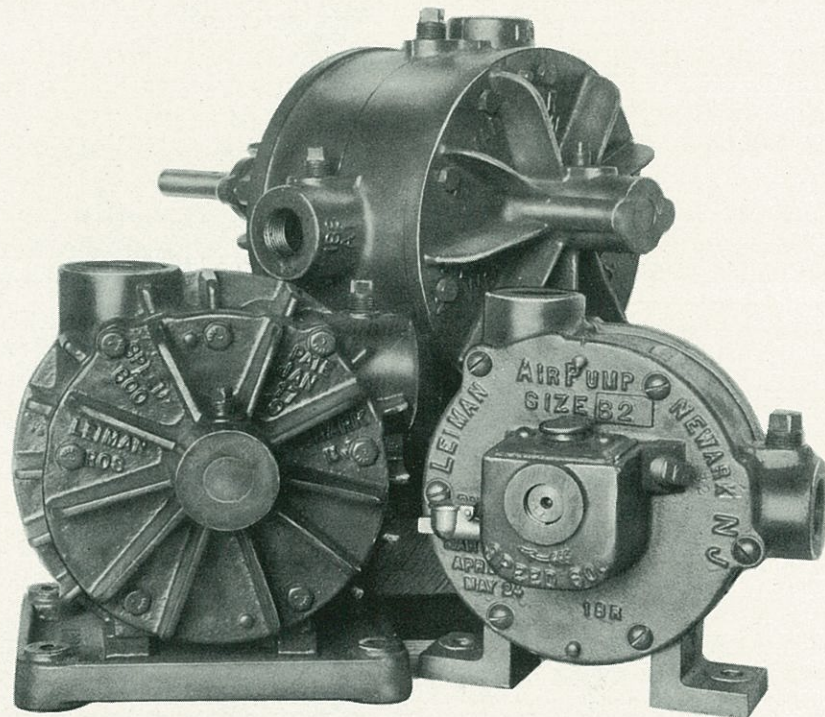
Suction or vacuum. Blowing or pressure.  
No. 1341D

From the above it is seen that the smaller the opening the higher the pressure or suction will be. For steady operation, however, it is best not to drive the machine at its maximum capacity and therefore a pressure or vacuum should not be maintained higher than is actually required to do the work in hand. The strength of the pressure or vacuum may be readily regulated and controlled by the use of the proper valves.

**LEIMAN BROS. INC. • NEWARK, N. J.**



## CONTROL OF HEAT IN VACUUM OR AIR PRESSURE WORK



No. 1441A

### Heating of the Pumps Does No Harm

Air subjected to compression will heat up the pump or, maintaining a high degree of vacuum, will create a proportional degree of heat. Notice the unique method employed in Leiman Bros. Pumps to counteract this drawback. First of all the hinged wings of the four curved wing type machine are not affected by the heat because they open and close on the hinges and with very little action. They cannot jam and stop due to the heat expansion of the metal on account of the adjustment action of this hinge movement.

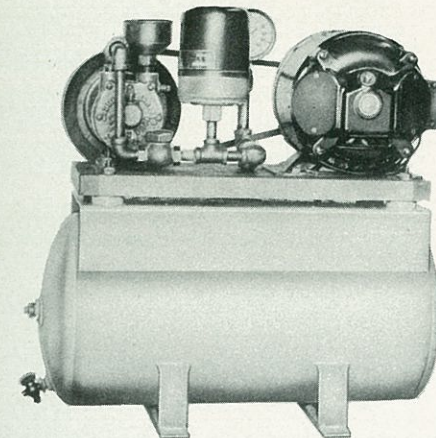
### Air Fins and Water Cooling

Another precaution against heat and in order to insure the high grade of service for which Leiman Bros. pumps are famous is the air cooling fins provided on those pumps where the service requires them and also the water cooling jackets for most extreme heat creating conditions.

All of these devices are very practical in use and have demonstrated their fitness to be included in the equipment of the various types of Leiman Bros. pumps which require them.

**LEIMAN BROS. INC. • NEWARK, N. J.**

## VACUUM AND AIR PRESSURE UNDER AUTOMATIC CONTROL



No. 2041A

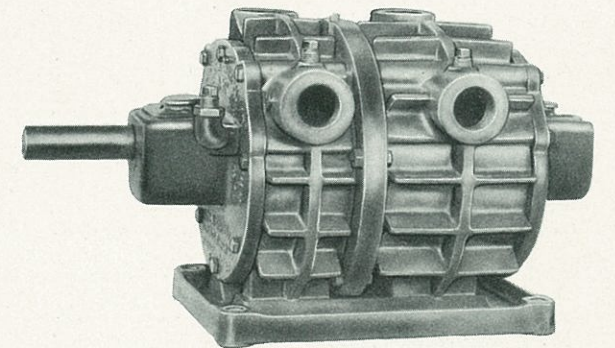
Many sizes of pumps are incorporated in these complete self contained outfits furnishing varying amounts of air in cubic feet in tank storage under pressure to be used in small quantities as required—or a vacuum of a predetermined degree may be maintained for use in the same way.

The supply in the tank is automatically maintained by electrical control within prescribed limits.

These outfits vary not only in size but also in degree of pressure or vacuum as well as horsepower and we are prepared to quote on automatic air supply outfits for vacuum or pressure on receipt of full particulars as to the service required or the duty to be performed.

## TWO CYLINDER ROTARY AIR PUMPS FOR VACUUM AND PRESSURE

Two-cylinder rotary air pumps are now furnished in various combinations of sizes or capacities; both cylinders may be used at different degrees of pressure or vacuum or one for pressure and the other for vacuum simultaneously. Full particulars of the service desired should accompany any request for quotations. These machines are compactly built to conserve space making them available in places where two separate pumps would ordinarily be called for. They are highly efficient and noiseless in operation.

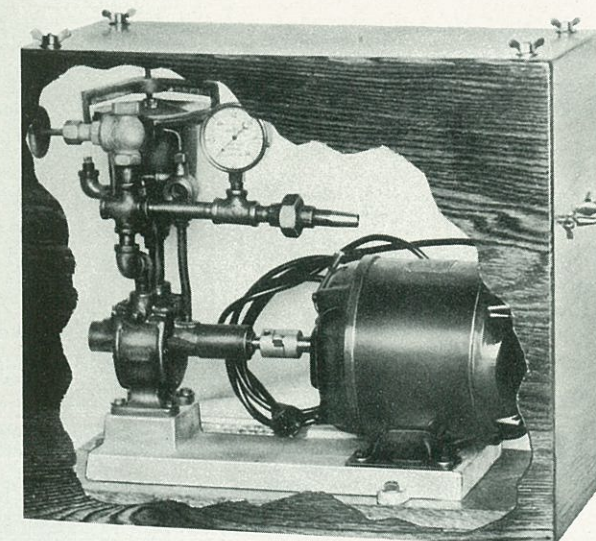


No. 2041B

## PORTABLE AIR UNIT FOR VACUUM OR PRESSURE

There are many occasions when a light weight, compact portable air supply is required and this is the one used for this class of work being not only one that occupies a small space but is very powerful. It may be used for vacuum or pressure work and will be furnished in almost any capacity required. Send full information for a quotation on just the outfit to fit your own special requirement.

All inclosed in oak carrying case with special fittings and controls.

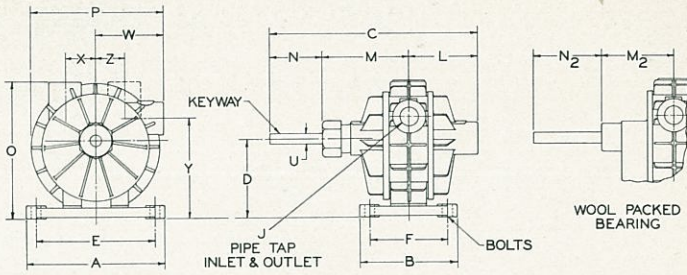
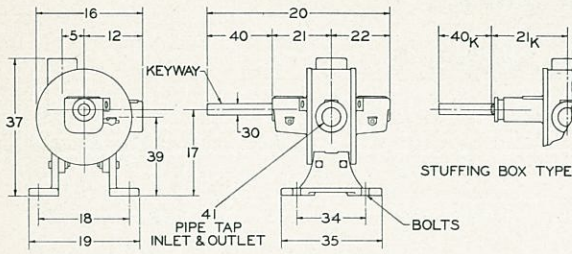


No. 2041C

**LEIMAN BROS. INC. • NEWARK, N. J.**



DIMENSIONS of Leiman Bros. Rotary Air Pumps

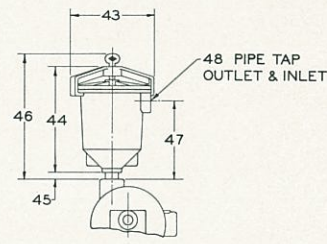
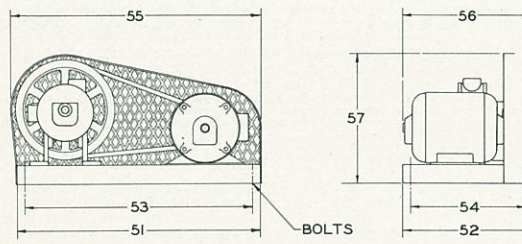


PUMP SIZES

	A	B	B-3	C	C-6	D	E	F	F-8	G
5	1 1/8	1 1/4	1 1/2	1 5/8	2 1/8	2 1/2	2 3/4	3 1/8	3 1/2	3 3/4
12	3 3/8	3 7/8	3 1/2	4 1/2	4 1/2	6 1/8	7 1/8	8 1/2	9 1/4	10 1/8
16	5 7/8	6 1/2	6 1/8	8 1/8	8 1/8	11 1/4	13 1/4	15 3/8	17 1/4	19 3/4
17	5 3/32	5 3/16	5 3/16	6 1/16	6 1/16	7 3/16	8 3/8	9 1/8	9 3/16	11 1/16
18	4 3/4	5 7/8	5 7/8	7	7	7 5/8	10 1/2	12 1/2	14	16 1/8
19	5 7/8	7 1/8	7 1/8	8 1/2	8 1/2	9 3/8	12 3/8	14 5/8	16 1/2	18 1/2
20	10 7/8	11	12	14	17 1/4	16 1/2	24	25 3/8	28 3/8	29 3/4
21	3 9/16	3 3/8	4 1/8	4 1/2	6 1/8	5 3/4	8 7/8	9 1/8	10 1/16	11 3/8
21K	4 5/8	4 5/8	5 3/8	5 3/8	7 3/4	6 1/16	9 9/16	10 5/16	12 1/4	12 3/8
22	3 9/16	3 3/8	4 1/8	4 1/2	6 1/8	5 3/4	8 7/8	9 1/8	10 1/16	11 3/8
30	1 1/16	1 1/16	1 1/16	1 3/16	1	1	1 1/4	1 5/16	1 9/16	1 3/8
34	4	4 3/8	4 3/8	5 1/4	5 1/4	8	9 3/8	9 1/4	10 1/8	10 5/16
35	5 7/8	6 1/8	6 1/8	7 3/4	7 3/4	10 5/8	12 7/8	12 1/4	13 5/8	14 1/2
37	8 1/8	8 7/8	8 7/8	10 5/8	10 5/8	12 1/4	14 5/8	16 1/8	17 1/8	19 9/16
39	5 1/8	5 13/32	5 13/32	6 3/32	6 3/32	6 1/2	7 9/16	7 13/16	8 1/2	9 9/16
40	3 3/4	3 3/4	3 3/4	5	5	5	6 1/2	6 1/2	7	7
40K	2 1/16	2 3/4	2 1/16	3 3/8	3 3/8	4 1/16	5 3/16	5 3/8	5 7/16	6
41	1/2	3/4	3/4	1	1	1 1/4	1 1/2	2	2	2 1/2
BOLTS	5/16	5/16	5/16	3/8	3/8	3/8	7/16	1/2	1/2	1/2
KEYWAY						1/4	1/4	3/8	3/8	3/8

PUMP SIZES

	25	26-1	26-1 1/2	26-3	27-2	28-2	28-3	28-4	28-6	29-3	29-6	30-6	31-6
A	3	3 1/4	3 1/4	3 1/4	6 3/4	6 3/4	6 3/4	6 3/4	7 7/8	7 7/8	7 7/8	6 1/4	12 11/16
B	3 1/32	2 3/4	2 3/4	4 7/16	5 1/2	5 1/2	5 1/2	5 1/2	6 1/4	6 1/4	6 1/4	10	12 3/8
C	5 7/8	7	7 13/16	9	11 3/4	12 1/2	13 1/2	14 1/2	14	15 5/8	16 3/8	15 1/2	16 7/8
D	1 1/16	2 29/32	2 29/32	2 29/32	3 3/4	4 3/8	4 3/8	4 3/8	5 7/32	5 7/32	5 5/32	7 1/8	9 1/2
E	2 9/16	2 5/32	2 5/32	2 5/32	5 1/16	5 1/16	5 1/16	5 1/16	6 3/4	6 3/4	6 3/4	4 1/4	10 1/2
F	ON C	2 1/8	2 1/8	3 3/4	4 9/16	4 9/16	4 9/16	4 9/16	5 3/16	5 3/16	5 3/16	7 1/2	9 3/8
J	1/4	1/4	3/8	1/2	1/2	3/4	3/4	3/4	3/4	1	1	1 1/4	1 1/2
L	1 7/8	2	2 9/16	3	3 3/8	3 3/8	4 1/8	4 5/8	5 1/4	4 1/2	6	5 3/8	5 5/16
M	2 1/2	2 13/16	3 3/16	3 13/16	4 3/8	5 1/8	5 5/8	6 1/8	—	6 1/8	7 5/8	—	—
M2	1 7/8	2	2 1/4	3	—	—	—	—	5	—	—	5 1/8	5 1/16
N	1 1/2	2 3/16	2 1/16	2 3/16	3 3/4	3 3/4	3 3/4	3 3/4	—	5	5	—	—
N2	2 1/8	3	3	3	—	—	—	—	3 3/4	—	—	5	6 1/2
O	3 1/8	4 7/8	4 7/8	5 1/8	6 9/16	7 1/32	7 1/32	7 1/32	9 3/8	9 1/8	9 1/2	12 3/16	16
P	2 27/32	3 5/8	4 1/2	3 5/8	6 1/8	7 1/16	7 1/16	7 1/16	8 13/16	8 7/8	9 1/16	11 9/16	14 1/16
U	3/8	1/2	1/2	1/2	1 1/16	1 1/16	1 1/16	1 1/16	1 3/16	1 3/16	1	1 3/8	1 3/8
W	—	—	—	—	3 1/8	3 5/8	3 5/8	3 5/8	5 1/8	4 7/16	4 5/8	6 1/2	7 3/8
X	3/4	1 5/16	1 5/16	1 5/16	1 5/16	1 5/8	1 5/8	1 5/8	1 1/4	2 3/16	2 3/16	2 1/2	3
Y	—	—	—	—	4 3/4	5 9/32	5 9/32	5 9/32	4 5/16	6 7/8	7 1/8	6 9/16	11 3/4
Z	3/4	1 5/16	1 5/16	1 5/16	—	—	—	—	—	—	—	—	—
BOLTS	1/4	1/4	1/4	1/4	3/8	3/8	3/8	3/8	1/2	1/2	1/2	1/2	1/2
KEYWAY												3/8	3/8



PUMP SIZES

	25	26-1	26-1 1/2	26-3	27 A	28 B	29 C	30 D	31 E	F	F-8	G
MOTOR H P	1/4	1/3	1/3	3/4	1	1	2	5	5	5	5	5
51	14 3/4	14 3/4	14 3/4	26 1/2	26 1/2	26 1/2	29 1/2	39	39	40 1/2	40 1/2	40 1/2
52	8 3/8	8 3/8	8 3/8	13	13	17	20 3/4	27 1/2	28	29 1/2	29 1/2	29 1/2
53	13 3/4	13 3/4	13 3/4	25	25	25	26 1/2	36	36	38	38	38
54	7 3/8	7 3/8	7 3/8	11 1/2	11 1/2	15 1/2	18 3/4	26	26 1/2	28	28	28
55	14 3/4	14 3/4	14 3/4	27 1/8	27 1/8	27 1/8	34 3/4	41 3/4	41 3/4	41 3/4	41 3/4	41 3/4
56	12 1/2	13	13	15 1/2	15 1/2	15 1/2	18 1/4	24 1/2	25 1/2	28 1/2	30	30
57	9	9	9	13 1/2	13 1/2	15 1/2	20 1/8	21 1/8	24 1/4	26 3/8	26 3/8	26 3/8
BOLTS	3/8	3/8	3/8	3/8	3/8	3/8	7/16	7/16	7/16	1/2	1/2	1/2

PUMP SIZES

	25	26-1	26-1 1/2	26-3	27 A	28 B	29 C	C-6	D	E	F	F-8	G
43	4 1/8	5 9/16	6 15/16	6 15/16	6 15/16	8 3/16	9 1/2	12 15/16	12 15/16	17 3/16	—	—	—
44	5 1/2	6 3/8	8 1/8	8 1/8	8 1/8	10 1/8	11 9/16	15 5/8	15 7/8	16 5/8	—	—	—
45	1 1/4	1 3/4	1/2	1/2	1/2	5/8	3/4	1	3/4	2 1/2	—	—	—
46	7 3/4	9	9 9/16	9 9/16	9 9/16	11 1/2	13 3/8	18	17 3/4	19 1/2	—	—	—
47	4 3/4	5 3/4	6	6	6	7 3/4	8 7/8	12 3/4	12 1/2	15 3/8	—	—	—
48	1/4	3/8	1/2	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	—	—	—

DIMENSIONS of Leiman Bros. Motor Driven Air Pumps

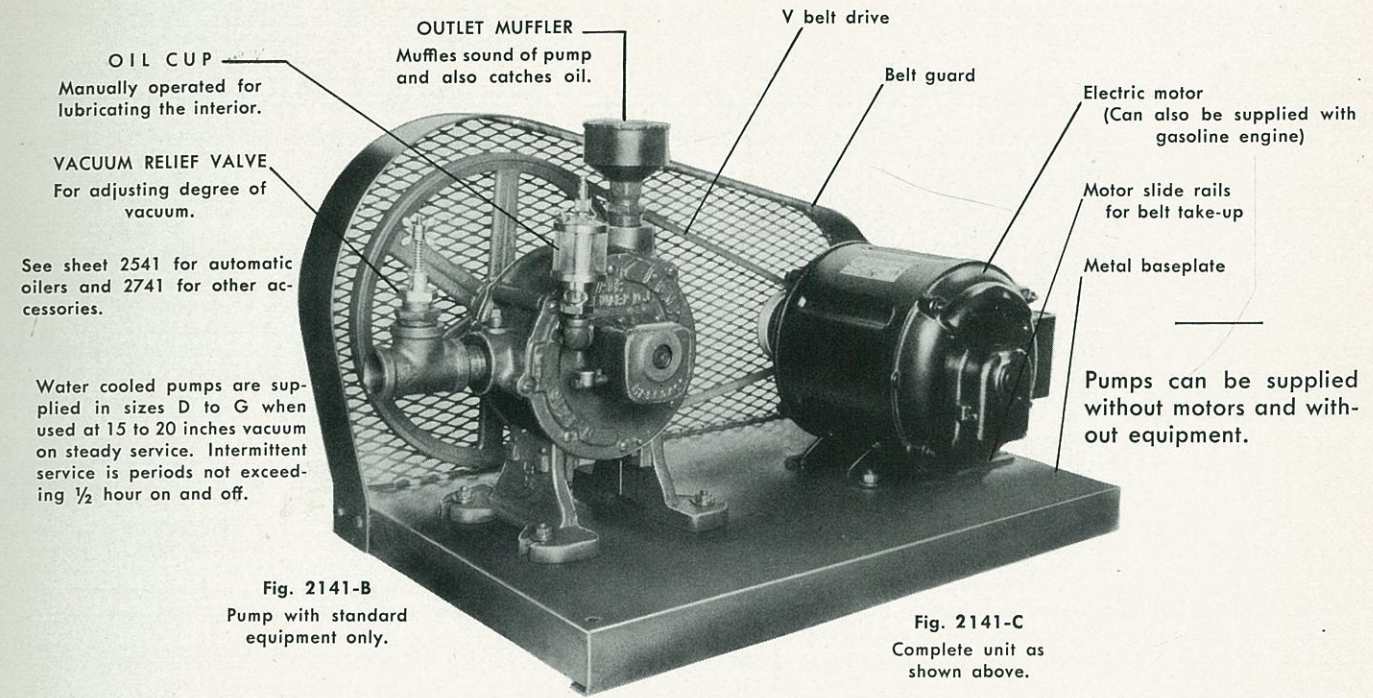
DIMENSIONS of Leiman Bros. Automatic Oiling Systems

DIMENSIONS SUBJECT TO CHANGE WITHOUT NOTICE

Certified Dimension Sheets Furnished if Required.

VACUUM PUMPS UP TO 20" MERCURY

STANDARD EQUIPMENT



See sheet 2541 for automatic oilers and 2741 for other accessories.

Water cooled pumps are supplied in sizes D to G when used at 15 to 20 inches vacuum on steady service. Intermittent service is periods not exceeding 1/2 hour on and off.

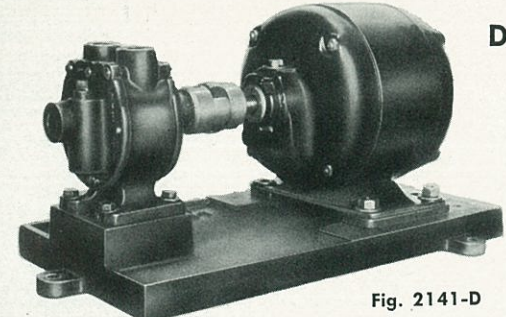
Fig. 2141-B Pump with standard equipment only.

Fig. 2141-C Complete unit as shown above.

STANDARD MOTOR DRIVE UNIT

		*				*				*				*			
SIZE OF PUMPS		25	26-1	26-1½	26-3	A	B	B-3	C	C-6	D	E	F	F-8	G		
CU.FT. PER MINUTE APPROXIMATE DISPLACEMENT		AT 1200 RPM				AT 600 RPM		AT 400 RPM		AT 300 RPM	AT 250 RPM	AT 200 RPM					
		.8	1.6	2.4	4.8	4.8	8.5	12.7	15	30	25	61	70	105	147		
		AT 1750 RPM				AT 750 RPM	AT 700 RPM		AT 500 RPM		AT 425 RPM	AT 300 RPM	AT 220 RPM				
		1.2	2.4	3.6	7.2	6	10	15	18	37	35	73	78	115	162		
INLET & OUTLET PIPE SIZE		¼	¼	⅜	½	½	¾	¾	1	1	1¼	1½	2	2	2½		
APPROX. NET WEIGHT BARE PUMP		3	6	8	13	23	27	31	45	60	79	148	187	288	303		
HORSE POWER	AT 6 INCH	AT 1200 RPM				AT SLOW SPEEDS											
		⅛	⅙	⅙	¼	¼	⅓	½	½	1	¾	1½	2	3	5		
	AT 10 INCH	⅛	⅙	⅙	⅓	⅓	½	¾	¾	1½	1	2	3	5	5		
	AT 15 INCH	⅛	⅙	¼	½	½	¾	¾	1	2	1½	3	5	5	7½		
	AT 20 INCH	⅛	⅙	¼	½	½	¾	1	1	2	2	5	5	7½	7½		

\*These sizes not always carried in stock See separate price list.



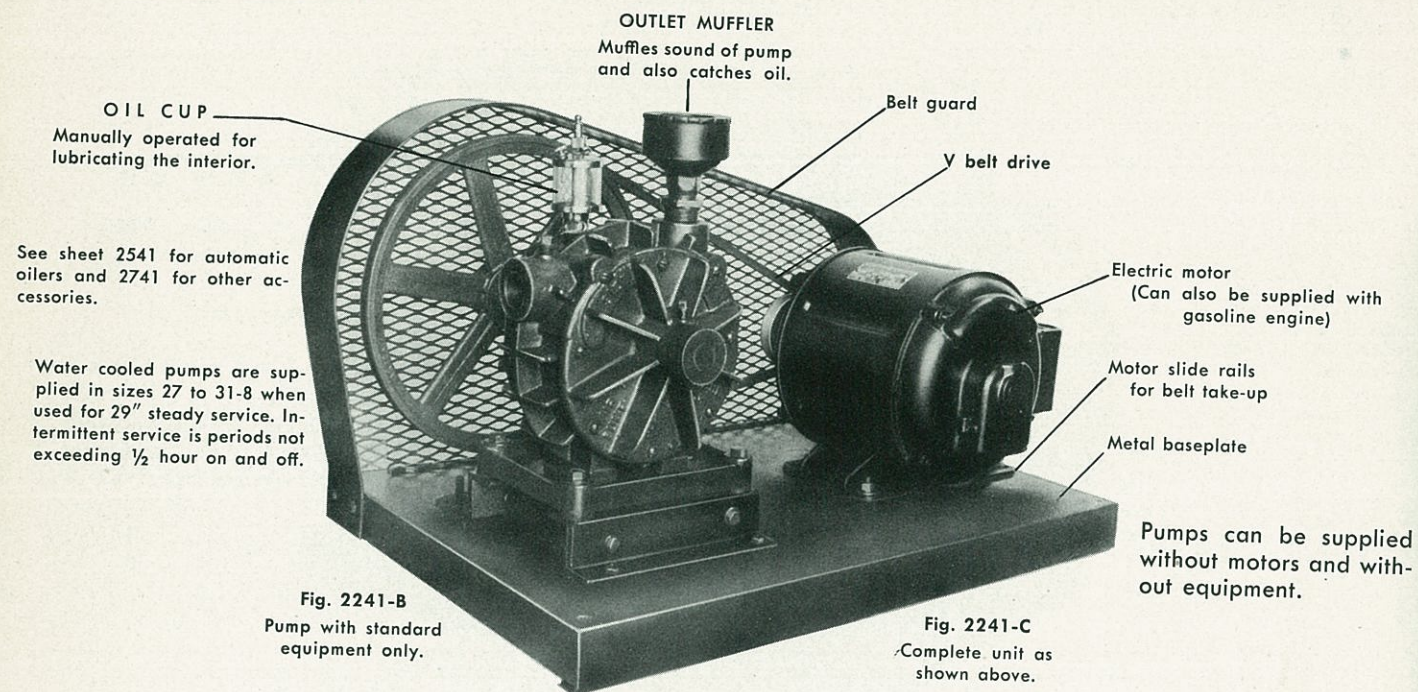
DIRECT COUPLED UNITS, MADE TO ORDER

No. 25 and 26 pumps can be run at 1750 rpm. in some cases. Gear reducer motors used with sizes A to G.



## VACUUM PUMPS 21" to 29" MERCURY

## STANDARD EQUIPMENT

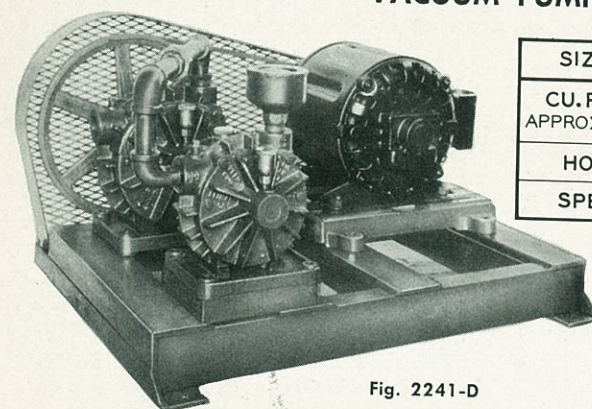


## STANDARD MOTOR DRIVE UNIT

SIZE OF PUMPS		25	*		26-3	*		*		*		*			
		26-1	26-1½	26-3	27	28-2	28-3	28-4	28-6	29-3	29-6	30-6	31-6	31-8	
CU.FT. PER MINUTE APPROXIMATE DISPLACEMENT	AT 1200 RPM				AT 800 RPM								AT 600 RPM		
	.8	1.6	2.4	4.8	4.4	8.3	12.4	18.4	24.8	20.4	40.8	53	87	116	
	AT 900 RPM														
	.6	1.2	1.8	3.6											
INLET & OUTLET PIPE SIZE		¼	¼	⅜	½	½	¾	¾	¾	¾	1	1	1¼	1½	1½
APPROX. NET WEIGHT BARE PUMP		3	6	8	13	23	28	32	36	63	51	78	153	257	320
HORSE POWER	AT 24 INCH	AT 1200 RPM				AT ABOVE SPEEDS									
	AT 27 INCH	⅛	⅙	¼	½	½	¾	¾	1	1½	1½	2	3	5	5
	AT 29 INCH	⅛	¼	¼	½	½	¾	1	1	1½	1½	3	3	5	5
					½	¾	1	1½	2	1½	3	3	5	7½	

\*These sizes not always carried in stock      See separate price list.

## VACUUM PUMPS FOR OVER 29" MERCURY



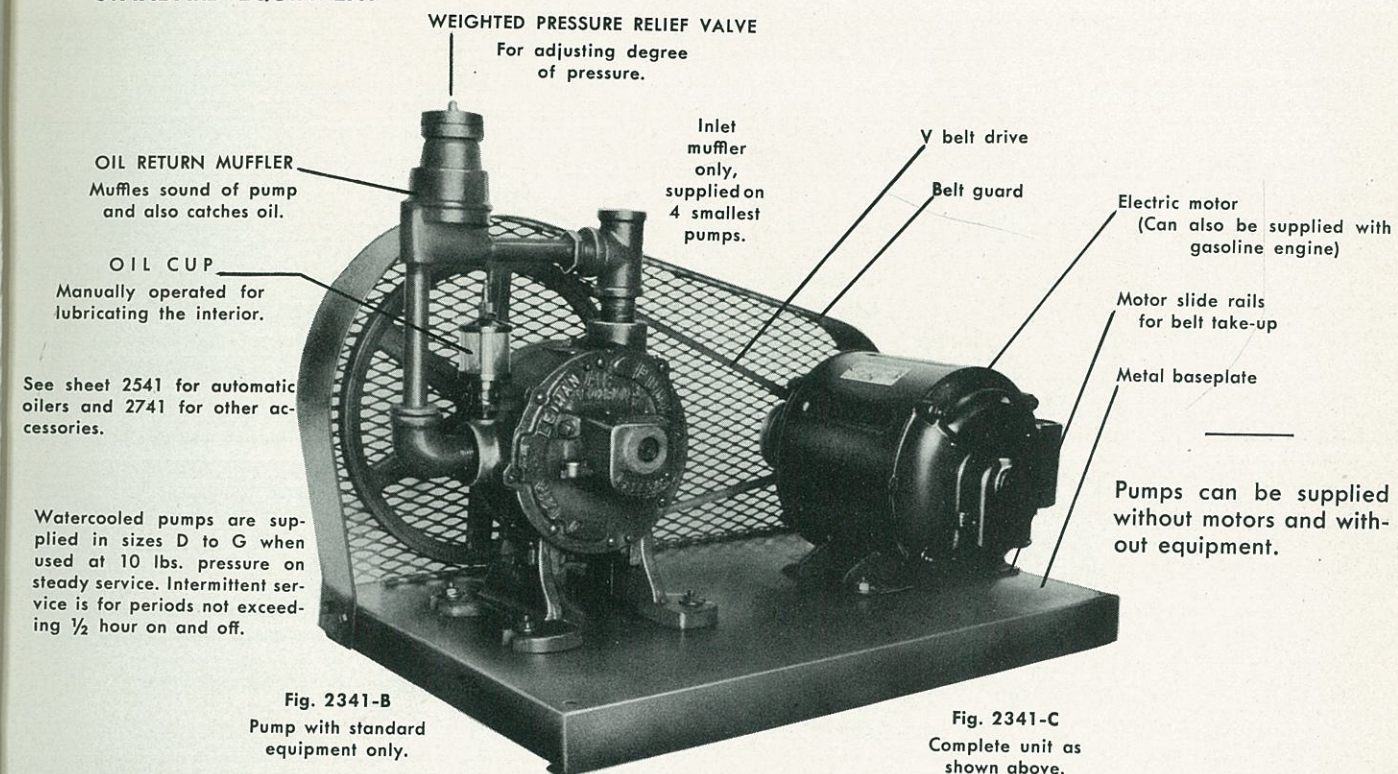
SIZE OF PUMPS	26-1½	27	28-2	29-3	29-6	30-6	31-6
CU.FT. PER MINUTE APPROX. DISPLACEMENT	2.4	3.3	6.2	10.2	20.4	53	87
HORSE POWER	½	½	¾	1	1½	3	5
SPEED MAX. R.P.M.	1200	600	600	400	400	600	600

\*These sizes not always carried in stock

For extremely high vacuum such as is usually required in exhausting electric light and radio bulbs, this set of pumps may be used. One pump reinforces or backs up the other, thus making the work lighter and of less strain on the pumps than would be the case were only a single high vacuum pump used. This means a much longer life for the machines.

## PRESSURE PUMPS UP TO 10 LBS.

## STANDARD EQUIPMENT

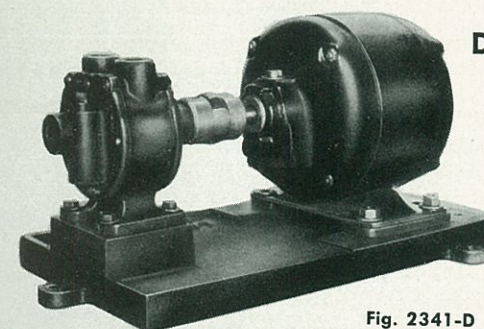


## STANDARD MOTOR DRIVE UNIT

SIZE OF PUMPS		*				*				*				*			
		25	26-1	26-1½	26-3	A	B	B-3	C	C-6	D	E	F	F-8	G		
CU.FT. PER MINUTE APPROXIMATE DISPLACEMENT		AT 1200 RPM				AT	600 RPM		AT 400 RPM		AT 300 RPM	AT 250 RPM	AT 200 RPM				
		.8	1.6	2.4	4.8	4.8	8.5	12.7	15	30	25	61	70	105	147		
		AT 1750 RPM				AT 750 RPM	AT 700 RPM		AT 500 RPM		AT 425 RPM	AT 300 RPM	AT 220 RPM				
		1.2	2.4	3.6	7.2	6	10	15	18	37	35	73	78	115	162		
INLET & OUTLET PIPE SIZE		¼	¼	⅜	½	½	¾	¾	1	1	1¼	1½	2	2	2½		
APPROX. NET WEIGHT BARE PUMP		3	6	8	13	23	27	31	45	60	79	148	187	288	303		
HORSE POWER	AT 3 LB	AT 1200 RPM				AT SLOW SPEEDS											
		⅛	⅙	⅙	¼	¼	⅓	½	½	1	¾	1½	2	3	5		
	AT 5 LB	⅙	⅙	⅙	⅓	⅓	½	¾	¾	1½	1	2	3	5	5		
	AT 10 LB	⅙	⅙	¼	½	½	¾	1	1	2	2	5	5	7½	7½		

\*These sizes not always carried in stock      See separate price list.

## DIRECT COUPLED UNITS, MADE TO ORDER

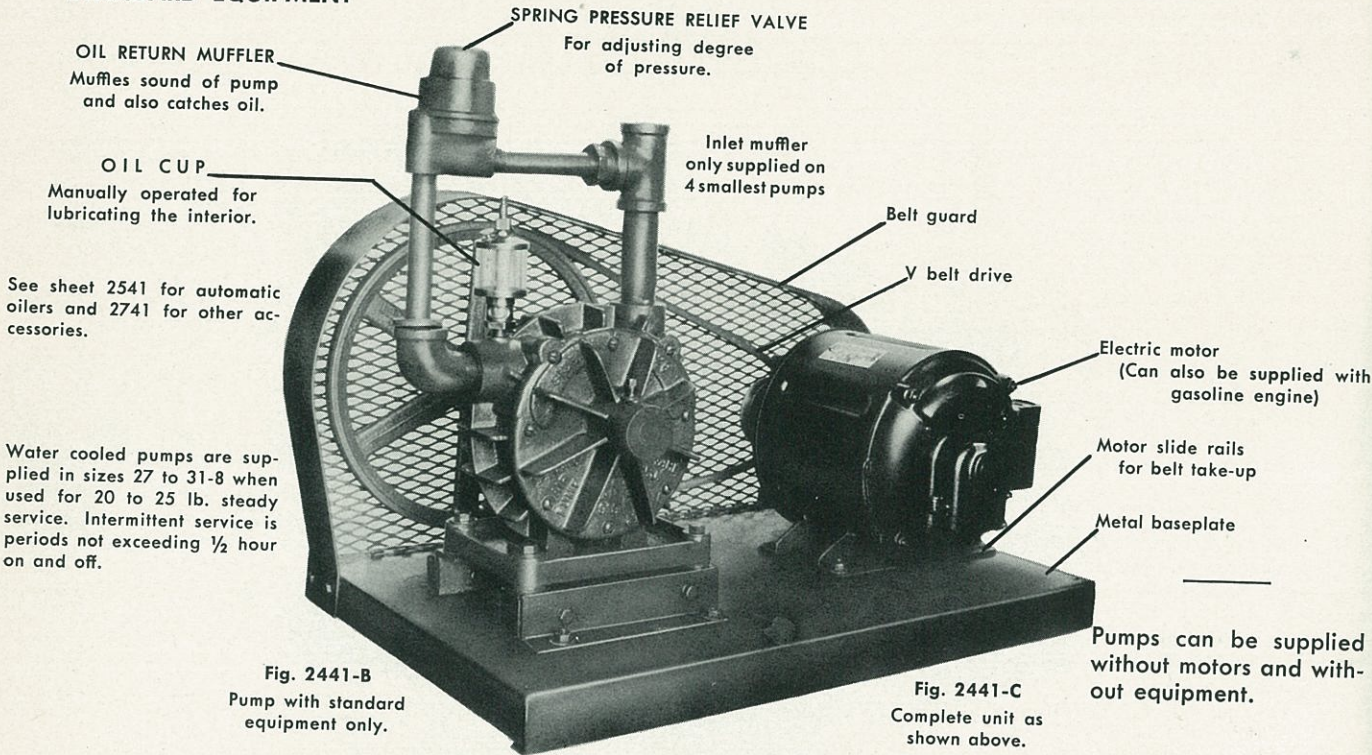


No. 25 and 26 pumps can be run at 1750 rpm. in some cases. Gear reducer motors used with sizes A to G.



PRESSURE PUMPS 11 TO 25 LBS.

STANDARD EQUIPMENT



See sheet 2541 for automatic oilers and 2741 for other accessories.

Water cooled pumps are supplied in sizes 27 to 31-8 when used for 20 to 25 lb. steady service. Intermittent service is periods not exceeding 1/2 hour on and off.

STANDARD MOTOR DRIVE UNIT

SIZE OF PUMPS		25	26-1	26-1 1/2	26-3	27	28-2	28-3	28-4	28-6	29-3	29-6	30-6	31-6	31-8
CU. FT. PER MINUTE APPROXIMATE DISPLACEMENT	AT 1200 RPM	.8	1.6	2.4	4.8	AT 800 RPM						AT 600 RPM			
	AT 900 RPM	.6	1.2	1.8	3.6	4.4	8.3	12.4	18.4	24.8	20.4	40.8	53	87	116
INLET & OUTLET PIPE SIZE		1/4	1/4	3/8	1/2	1/2	3/4	3/4	3/4	3/4	1	1	1 1/4	1 1/2	1 1/2
APPROX. NET WEIGHT BARE PUMP		3	6	8	13	23	28	32	36	63	51	78	153	257	320
HORSE POWER	AT 15 LB	AT 1200 RPM					AT ABOVE SPEEDS								
	AT 20 LB	1/8	1/4	1/3	3/4	1/2	3/4	1	1 1/2	2	2	3	3	5	7 1/2
	AT 25 LB	1/6	1/4	1/2	3/4	3/4	1	1 1/2	1 1/2	3	2	5	5	7 1/2	10

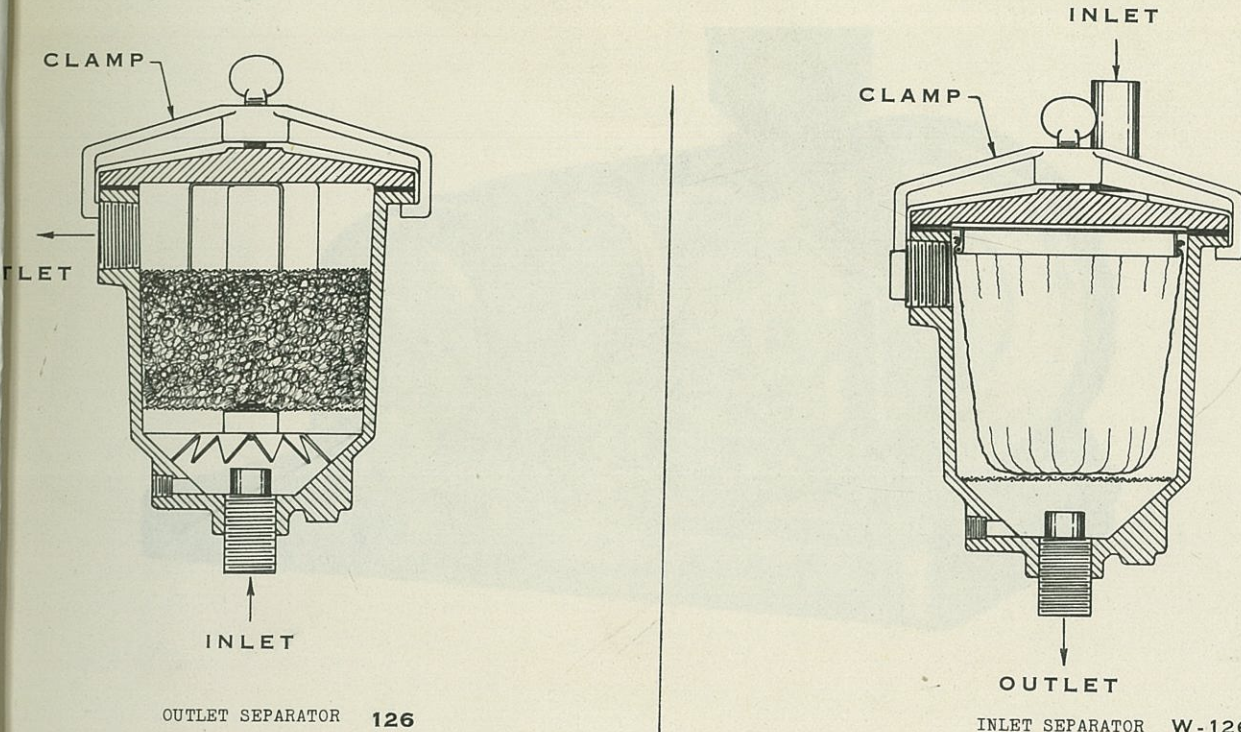
\*These sizes not always carried in stock See separate price list.

MOTOR DRIVEN PUMP UNITS

Our motor-driven pump unit is equipped with a V belt drive. This drive consists of one or more V shaped endless rubber belts which run in wedge shaped grooves in the pulleys. This type of groove prevents slippage of the belts even though they may become slack. The slide rails or slotted base on the motor however permits taking up the slack should it become necessary. This type of drive permits placing the motor close to the pump thus conserving floor space.

Motors under 1 hp are for 60 cycles, single phase current and 1 hp and larger for 60 cycles, three phase current. Motors for other currents quoted on. Also on gasoline motors if required.

AIR FILTERS & OIL SEPARATORS



This separator is for use on the outlet or pressure of our air pumps. It will absorb the oil which is ed along with the air from the pump thus preventing oil from creeping along the pipe line and blowing the work where the air is used.

The separator contains an appropriate filter materi-rough which all the air must pass.

Due to its large size, this separator does not any resistance to the flow of air nor does it cut the air pressure.

A turn of the one thumb screw permits quick re- of the cover for replacement of the filter medium necessary.

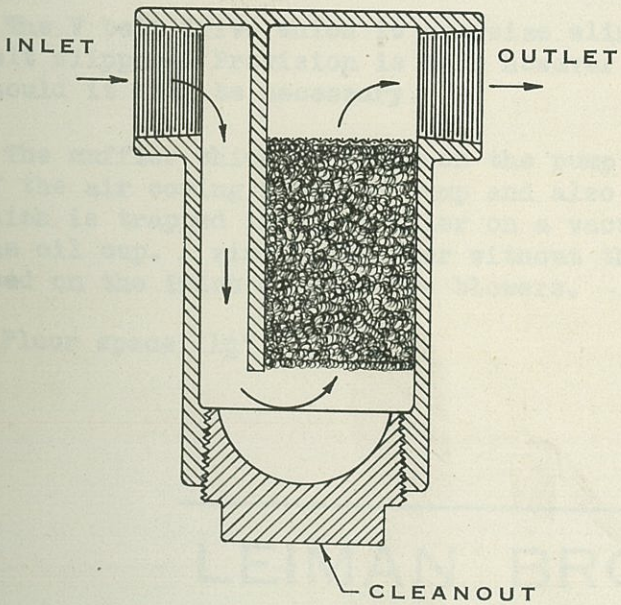
This type of separator is used on the inlet or vacuum side of our air pumps to clean the air before it enters the pump.

All the air passes through the finely woven filter cloth bag which retains dust, dirt, grit and other foreign substances and prevents their entering the pump interior. This prevents undue wear on the finely fitted pump parts and prolongs the life of the pump.

One turn of the thumb screw permits quick removal of the cover for emptying the bag when necessary. Due to the large size of the bag, no resistance is offered to the flow of air.

On paper feeding machines it collects the fine paper lint or dust which otherwise would clog up the pump. On gas pumps it collects the carbon, the tar and dirt which is sometimes present in the gas.

Also used with vacuum chucks, etc.

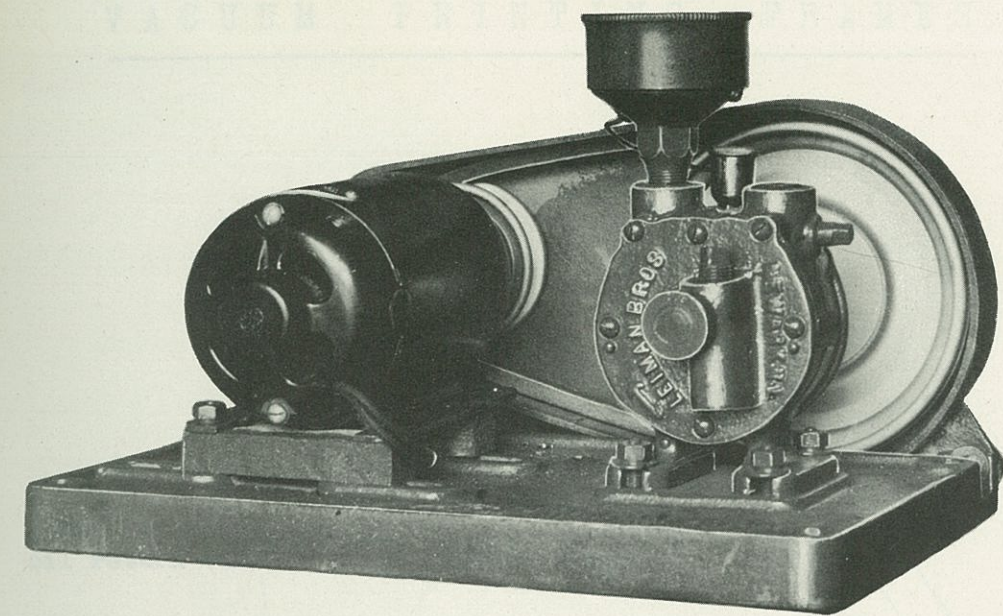


SMALL CAPACITY SEPARATOR L-126

This separator answers the same purpose as our other large separators but it is suitable for our smallest size pumps only.

It is made in 3/8", 1/2" and 3/4" pipe size only. Contains a small quantity of filter medium and is low priced.





#### BELT DRIVEN PUMP UNIT.

The above picture shows the small pump, driven by a motor with a V rubber belt. The #25, 26-1, 26-1 $\frac{1}{2}$  and 26-3 pumps appear as above.

This method of driving the pump whereby the pump runs at about 800 to 1000 rpm. has the advantage over the direct coupled pump which runs at motor speed of 1750 rpm. as the pump runs quieter and cooler when it runs slower.

The V belt drive which is oversize eliminates any trouble with belt slippage. Provision is made however for taking up belt slack should it ever be necessary.

The muffler which is shown on the pump outlet, muffles the sound of the air coming from the pump and also absorbs oil vapor. Any oil which is trapped in the muffler on a vacuum pump is drained back to the oil cup. A similar muffler without the oil return feature is used on the inlet of pressure blowers.

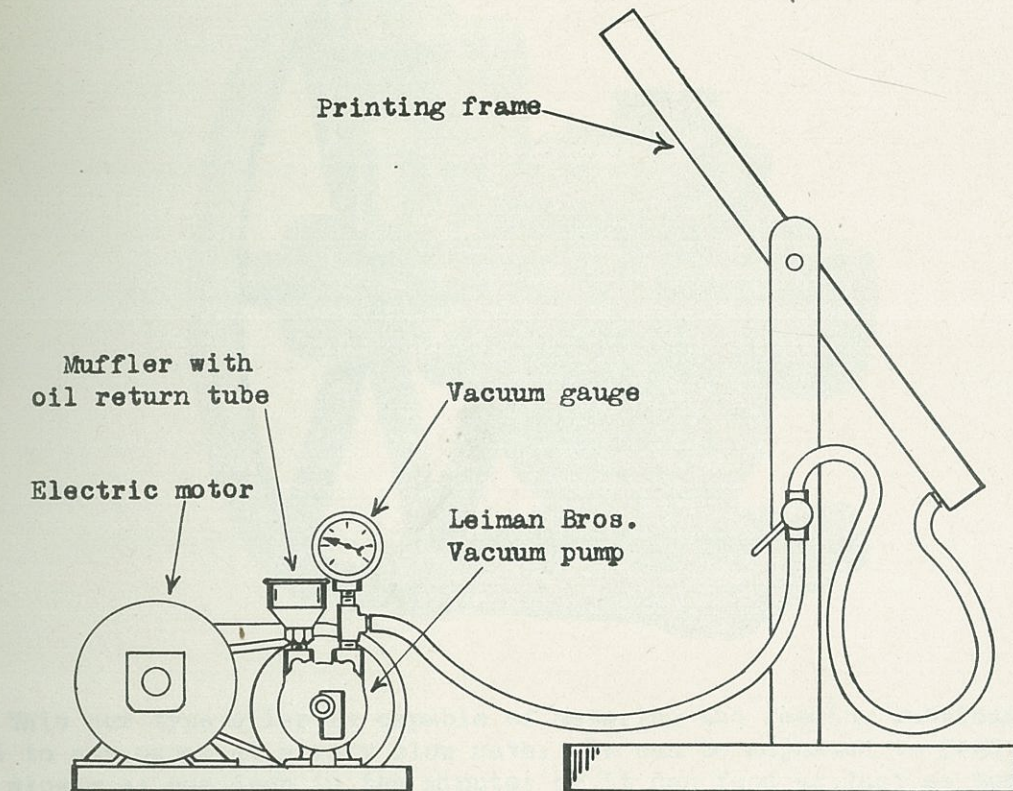
Floor space 11 $\frac{1}{2}$ " x 13 $\frac{1}{2}$ "

## LEIMAN BROS., INC.

CHRISTIE ST., NEWARK, N. J.



## PUMPS FOR VACUUM PRINTING FRAMES



This pump will produce a very high vacuum (about 27 inches) which will keep the work tight against the glass. Also used for holding film against camera back.

The #26-1½ vacuum pump will take care of any vacuum frame up to about 36" x 48". As it will take a little longer to build up a vacuum on the larger size frames, a larger pump is usually used.

We can also supply large pump units with automatic vacuum control for maintaining a high vacuum at all times for use with a group of frames.

The V belt drive which is oversize eliminates any trouble with belt slippage. Provision is made for taking up belt slack should it ever become necessary. The belt drive permits the pump to run at less than motor speed and permits it to run quieter and cooler.

The muffler on the outlet of the pump muffles the sound of the air coming from the pump outlet and also absorbs oil vapor. Any oil which is trapped in the muffler is drained back to the oil cup.

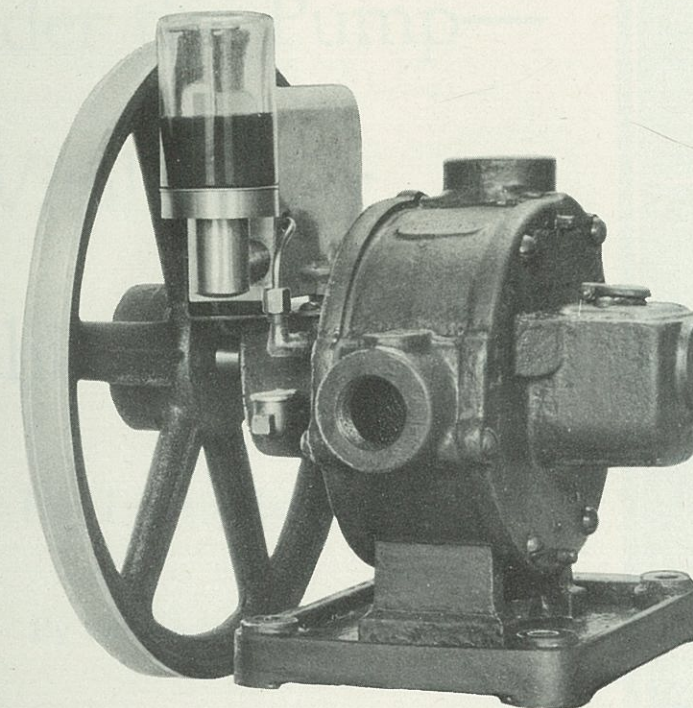
Floor space of #26-1½ pump unit is 13" x 15"

### LEIMAN BROS., INC.

CHRISTIE ST. NEWARK, N. J.



## C-182 AUTOMATIC OILER



This new type oiler is capable of metering and feeding lubricating oil to our pumps at a very slow rate. It can be adjusted to feed oil as slowly as one drop in ten minutes or it can feed as fast as ten drops in one minute. Any adjustment between these extremes can be obtained. Adjustments are usually made at our factory to suit the particular condition and the pump on which the oiler is mounted.

The glass reservoir jar shows visibly at all times the amount of unused oil. From the reservoir jar, the oil runs into a trough inside the oiler where a constant level is maintained at all times. A dip pin, mounted on a rotating wheel, picks up and meters small amounts of oil from the oil trough. The rotating wheel is driven from the pump shaft, therefore, when the pump stops, the oil stops feeding.

The oiler is small in size, being not much larger than the pump bearing and nests in the space between the pump body and the pulley.

The extremely slow rate at which this oiler is capable of feeding, enables the pump to run without giving off any perceptible oil vapor in the exhaust air. One filling of the reservoir jar will last for a long time (about one week.)

The oiler will feed light, heavy or medium viscosity oil.

**LEIMAN BROS., INC.**

CHRISTIE ST., NEWARK, N. J.



# Consider the Pump— Vital Factor in Machine Performance

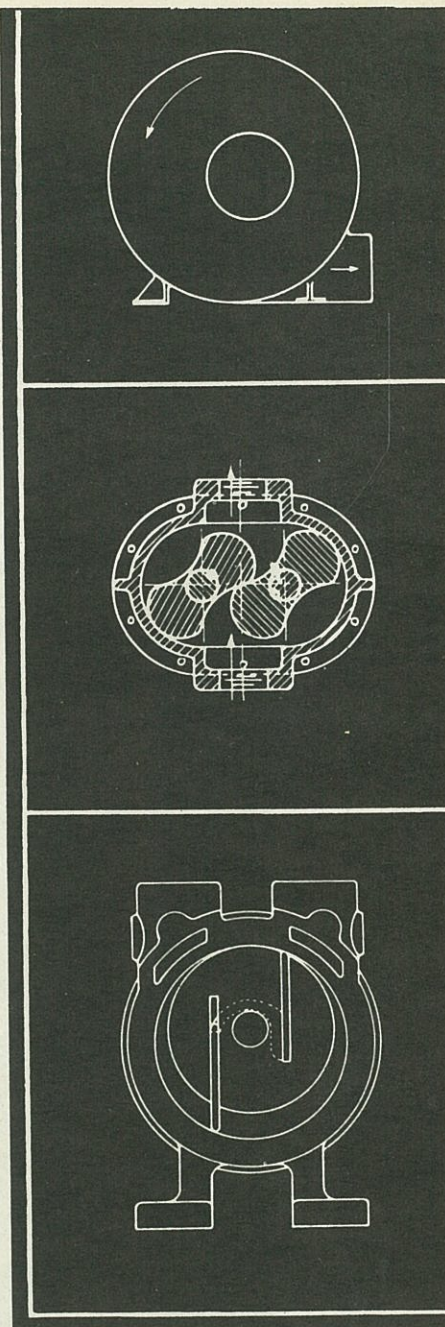
## Part I—Air Pumps

By Ormonde Bogert

**A**IR—either pressure or suction—can often be substituted for mechanical means in the design of machinery to perform operations better, more smoothly and more economically. Application of this substance in design can be readily made by judicious use of pumps especially designed to create either the necessary air pressure or suction.

Considering first the pressure pumps, the type of blower for lowest pressure is the propeller type or office fan. This delivers a large volume of air at practically no pressure. It operates best when not connected to any piping. Next in the pressure range is the fan blower which is suitable for pressure up to about 6 ounces, top of *Fig. 1*. When greater pressure is required, the designer may use the turbine blower in which there is little clearance between the fan and the housing. This type is suitable for pressures up to about 3 pounds when made in multi-stage. It appears as in *Fig. 1*, top. Then comes the positive pressure blower which is suitable for pressures up to 20 pounds, while a few types are rated up to 50 pounds. Various designs of this type of unit are shown in *Figs. 1, 2 and 3*. For pressures above 20 pounds the reciprocating piston type should ordinarily be used.

Rotary positive pressure blowers of these various types which operate most efficiently at pressures between one and ten pounds have many uses in machines. By employment of a mechanism built around these pumps and included in a printing press,



*Fig. 1—A variety of means is employed for producing vacuum or suction*

printed sheets can be sprayed with a mist of hot paraffine to permit their being piled without smearing of the ink as they come from the press. The spraying is done with air at a few pounds pressure. Water can also be sprayed to increase the humidity of the atmosphere. Fuel oil can be sprayed and broken up



*Fig. 2—Sliding portions of this pump compensate for any possible wear*



course, be proportionately smaller. Large pipes cause less friction losses and also act as reservoirs. On suction feeders having valves which quickly open and close for feeding the sheets, the pipe line should be quite small between the valve and the sucker. The pipe line from the valve to the pump should be kept large.

Designers should provide a dust trap or filter on the vacuum line ahead of the pump to protect the pump. Air pumps are closely fitted and dirt will spoil these fits. Air charged with acid fumes may be allowed to bubble through an alkaline solution to neutralize the air before it enters the pump. A few pressure blowers discharge some lubricating oil with the air, therefore an oil separator should be placed in the line if this oil is objectionable.

#### Velocity Is Reduced

With the pump size remaining constant, the higher the vacuum, the less is the velocity through the piping. At high vacuum, 29 inches for instance, there is practically no velocity, there being principally a static condition.

A higher vacuum than is necessary should not be used as the efficiency of the pumps de-

creases as the vacuum increases. This causes a waste of power and causes undue wear on the pump. Pumps perform more efficiently at 15 inches than at 20 inches, and more efficiently at 20 inches than at 25.

Pumps do not operate efficiently under both vacuum and pressure at the same time. When a pump is run under vacuum, the air flow is being held back from the pump and the outlet air is therefore cut down in volume. At a vacuum of about 29 inches there would be practically no air coming from the outlet to be used for pressure.

Individual pumps should be used on individual applications. If one pump is used to operate the vacuum on several operations, the failure of one will affect the others. For example, if one pump is used to operate a series of suckers at various points on an automatic machine, and a piece should not be picked up by one sucker, all other pieces will be dropped by the other suckers.

A good design precept to remember in planning all machinery is that the lifting power of suction cups is in proportion to their area; therefore, it is wise to make the cups large and keep the vacuum low.

## VACUUM as well as AIR PRESSURE For the Automatic Machine

They Operate the Paper Feeder, Bottle Filler, Gas Machine, Oil Burner, Sand Blast, Etc.

The most strenuous test to which an air pump can be put is that involving vacuum. In vacuum—as in pressure work—the Leiman Bros. Air Pump has gained national prominence. Most of the best known paper feeding devices, bottle fillers, labelers, wrappers, etc., are equipped with Leiman Bros. Air Pumps.

Makers and users of this type of machinery have found that the sturdy Leiman Bros. Air Pump, because it takes up its own wear, is able to preserve its faultless operation in maintaining a good vacuum indefinitely.

The parts of this air pump are machined and fitted with infinite care. The pump itself is simple in construction, noiseless in operation and powerful—certain models will maintain 20 inches vacuum and more.

Vacuum or pressure may be obtained from the same machine. Or some may be reversed and run as air motors.

If your production problem involves air pressure or vacuum (or requires the use of an air motor) the installation of a Leiman Bros. Air Pump will save time and money.

Write today for complete information about this nationally used air pump.

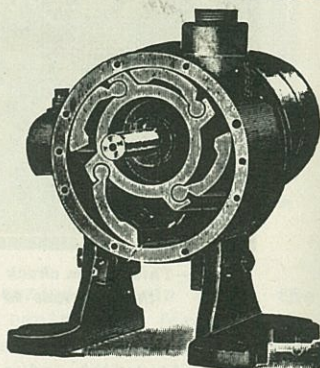
**Leiman Bros. Patented Rotary Air Pumps**  
for pressure, gas or vacuum (also operates as an air motor)

**Leiman Bros., Inc.** Christie Street, Newark, N. J.

OR YOUR DEALER

... Makers of Good Machinery for over 45 Years ...

FOREIGN EXPORT INQUIRIES SOLICITED



#### ADVANTAGES

They take up their own wear.  
Last a Lifetime.  
Operate noiselessly.  
Are Simple, Powerful and Efficient.  
Many Sizes.

**LEIMAN BROS., INC.**



*Air Pumps*

MANUFACTURERS OF ROTARY

VACUUM PUMPS  
GAS BOOSTERS  
AIR MOTORS  
DUST COLLECTORS  
SAND BLASTS

146-181 CHRISTIE STREET NEWARK, N. J.

TELEPHONE MARKET 2-5018-9

Feb. 19, 1942

L. F. Seyfert's Sons, Inc.  
N.W. Cor. 9th & Thompson Sts.  
Philadelphia, Pa.

Att: Purchasing Agent

Gentlemen:

In response to your request, we are sending you literature descriptive of our Rotary Air Pumps, Continuous Feed Sandblast Outfits, and our dust collectors for use with surface grinders of all makes having wheels from 6" to 24" diam.

Our pumps are also used as blowers and vacuum pumps, and for pumping gas and for use as air motors. They are furnished with full equipment, either with or without motor drive, for pressure, vacuum, gas boosting or air motor work. We list the various sizes separately for pressure and vacuum but the same machine may be used for either by utilizing the outlet for pressure and the inlet for the suction.

Many of these pumps are used for the operation of gas burning appliances, blow pipes, furnaces, etc., and in connection with the operation of gas wells, paper feeding, bottle filling and other automatic devices.

These pumps take up their own wear—a very important point to consider—and one that leads to continuous satisfaction for the customer. They are noiseless in operation, highly efficient in action, and powerful and steady in the handling of air or gas. If you will give us full particulars as to how you wish to use these pumps, we will be able to quote on your exact requirements.

The sandblasting operation is a labor-saving one because it reduces the time necessary to do other work by preparing the way. The most inexperienced person in your plant can operate one of these machines at first glance and we supply full instructions as to their erection and operation. We have cabinet types, hose types, and combination hose and cabinets, as well as automatic types.

If you will give us the following information, we will then be able to quote on the proper outfit for your particular work, and send you an illustration of the same:

FOR DOMESTIC  
AND  
INDUSTRIAL  
FURNACES

OIL BURNER OUTFITS  
**LEIMAN BROS.**

INSTALLATIONS  
IN ALL SORTS  
OF  
BUILDINGS



1. Size and weight of the largest piece of work you have to do.
2. The material of which it is made.
3. The number of pieces to be done each hour.
4. The results you wish to secure.
5. How you do the work now.
6. Have you an air supply?
7. Complete copy of lettering on the nameplate or on the body of the casting of your blower or air compressor.
8. Volts, cycles and phase of your electric current if you want a motor-driven sandblast.

The B-569 dust collector is offered where the work is of an intermittent nature with one wheel up to 6" diam. Outfit G-569 is still more powerful with one 6" wheel for continuous duty with a concentrating centrifugal cyclone and dust receptacle at \$145. The larger outfits are for larger wheels; the G-569-12 at \$245 is for one 12" wheel and G-569-24 is \$310 and is for one 24" wheel. The double outfits collect from two buffs or stones or are for use with double end spindle machines. We should be informed regarding the distance between each wheel. Outfit GG-569 for two 6" wheels costs \$260; GG-569-12 for two 12" wheels costs \$370 and GG-569-24 for two 24" wheels costs \$470.

The outfits are furnished for 110 volts AC 60 cycles 1 phase less than 1 hp or 3 phase in 1 hp or more. Machines with different currents can be supplied but there may or may not be a difference in the price. Therefore, be sure to check up on the electric current, volts, cycles and phase.

in  
Before making a selection/these dust collectors, we call your particular attention to one very important point in dust collectors--we can make our dust collectors as small and compact as anyone else can but the more restricted the size of the dust handling compartment, the more restricted will be the suction, hence the smaller must be the suction pipes and hoods. There is a recognized standard of sizes for these parts which alone can insure proper dust collecting. Hence care should be taken not to unwittingly pin too much faith on dust collectors which may look good to you because they are small and compact; that may be the extent of their recommendations. Adequate expansion space for the air in the dust cyclone tanks that we furnish is your guarantee.

For special installations such as dust collecting from belt sanders, saws of different types, and similar devices, we usually supply the outfits without the hoods but with all the piping as shown and the purchaser usually makes up a hood to suit the local conditions. We can quote on flexible tube for use instead of solid piping. If you are unable to make the hood yourself, then we should have a little rough sketch with sizes showing the dust location with special reference to the direction of the flying dust.

All prices are net f.o.b. Newark, N. J.









## The SPIRIT OF '76 TODAY

Shoulder to shoulder men are marching on to the support of the liberty loving fighters of all lands. The shot heard 'round the world still reverberates even above the din of present day wars and it urges us ever onward to the support of freedom—

Patriots everywhere are working overtime and every little thing that any of us can do will count heavily and so Leiman Bros. offers its three helps to defense efforts—

In its dust collectors which keep the air free of grinding dust that men may work unhampered, hence faster and with greater net results. Their health is protected to give their efforts still greater strength, making their production that much greater.

In its vacuum pumps, air pressure blowers and gas booster pumps, many of which lend their aid to the higher development of automatic machines and processes. We are also proud of the fact that many of them are used by many branches of the Government in direct defense work.

And then lastly Leiman Bros. is equipping many defense contract plants as well as Government plants with its latest and most improved types of sandblast machines which are saving many man-hours in defense production by smoothing the way for, and speeding up, subsequent processes in this great work.

And so we feel that these helps which are so busy now in the nation's interest will continue to be extremely and increasingly useful to industry in the years to come.





## DEFENSE AGAINST DUST

### DON'T BREATHE GRINDING DUST

Breathing Dust Means Silicosis,  
Colds, Pneumonia, Tuberculosis  
and other illnesses

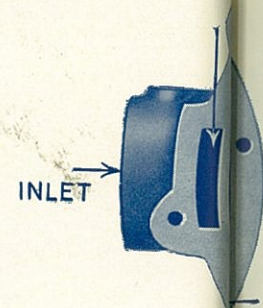
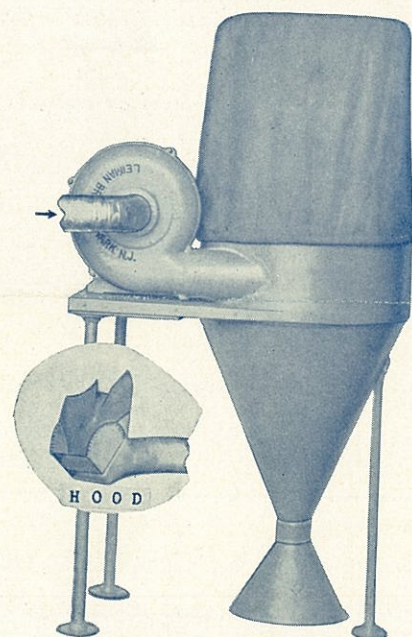
LEIMAN BROS.

### DUST COLLECTOR

SEVERAL TYPES AND SIZES

For use with . . .

**SURFACE GRINDERS  
DOUBLE END GRINDERS  
SAWS, SAND WHEELS**  
and other  
**DUST CREATORS**



May be used for blowing  
sorts of gasum printing  
furnaces or billers, testing  
Lifting and  
cardboard charging and  
Agitating and  
of liquids. y and safety  
Dehydrating

Vacu uses.

Leas.  
INAL

DEFENSE  
HELPS

MORE  
PRODUCTION

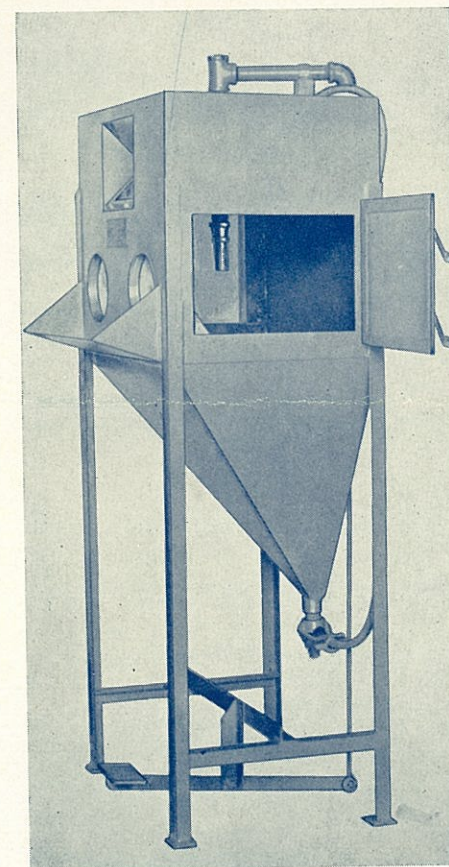
REMOVES  
HARDENING  
SCALE

QUICKENS MACHINING  
OPERATIONS

LEIMAN BROS. PATENTED

### SAND BLAST

MATT OR SATIN FINISH



Cabinet, Hose, Automatic  
and Special Types of  
Sand Blasts for Work on  
Metal, Plastics, Glass,  
Bakelite and all materials.

Leiman Bros Inc

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NEWARK N J



BUY U.S. SAVINGS BONDS  
ASK YOUR POSTMASTER

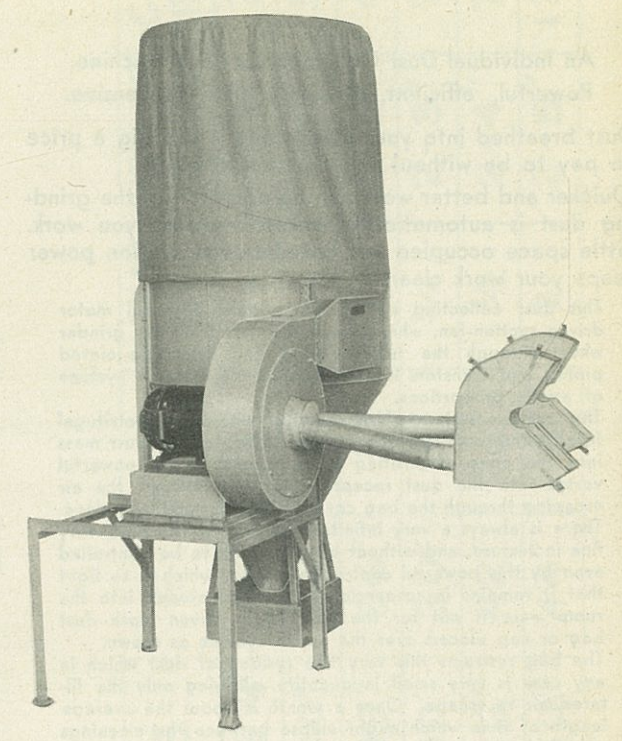
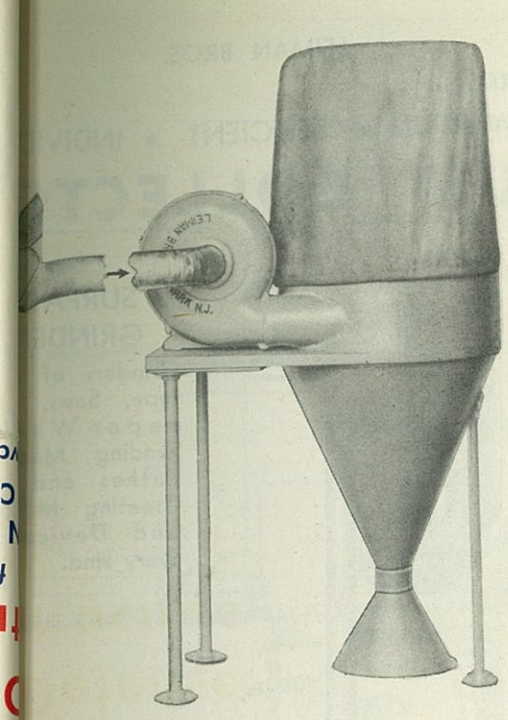
L.F. SEYBERT'S SONS  
477 N. 3RD ST  
PHILADELPHIA PA



Help  
Defense  
tractors  
from  
N BROS. INC.  
Christie St.  
ark, N. J.

LEIMAN BROS.  
New . . . **DUST COLLECTOR**  
COMPLETE INDIVIDUAL UNITS

Bulletin 3 3 4 1



For one wheel  
hood, 10 feet pipe & 3 elbows

Model	Size of Wheels	H.P.	Floor Space	Height	Net Wt.
GG-569	6"	1/4	20x30	53"	92
GG-569-12	12"	3/4	34x53	79"	345
GG-569-24	24"	1	39x64	91"	400

For two wheels  
with 2 hoods, 10 feet pipe & elbows

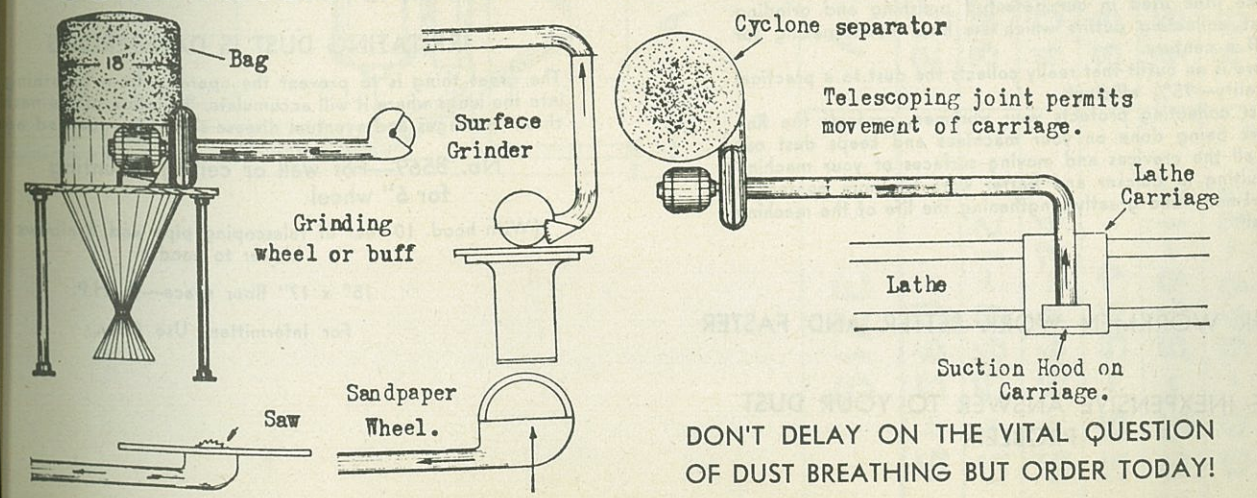
Model	Size of Wheels	H.P.	Floor Space	Height	Net Wt.
GG-569	6"	3/4	34x53	79"	350
GG-569-12	12"	1 1/2	45x71	107"	440
GG-569-24	24"	2	48x73	113"	600

Standard motors are 60 cycle, 110 volt, 1 phase under 1 H.P. & 3 ph. 1 H.P. and larger

Unit may stand on the floor at a maximum distance of 10 feet from the wall or may be fastened to the wall or hung from the ceiling. Should occasion require the cyclone tank itself may be placed at a distance or outdoors but not so far as to materially reduce the strength of the suction.

Each outfit is strongly built of galvanized steel sheet metal with a powerful electric motor driven suction fan of the solid block type of suction fan wings, quiet in operation and each machine designed to do the best possible work over a period of years.

**SOME APPLICATIONS OF THE G569 DUST COLLECTOR**



DON'T DELAY ON THE VITAL QUESTION  
OF DUST BREATHING BUT ORDER TODAY!



An Individual Dust Collector for each machine.  
Powerful, efficient, noiseless and inexpensive.

Dust breathed into your lungs daily is too big a price to pay to be without this health protector. Quicker and better work can be done where the grinding dust is automatically sucked away as you work. Little space occupied yet concentrated suction power keeps your work clean.

This dust collecting system has a very powerful motor driven suction-fan, which draws the dust from the grinder wheel through the suction hood and telescope-jointed piping and transfers it directly into the metallic cyclone of ample proportions.

This cyclone system whirls the dust with high centrifugal force which concentrates the main body of the dust mass into the cone, depositing it by means of the powerful vortex into the dust receptacle at the bottom, the air escaping through the bag covering the top of the cyclone. There is always a very infinitesimal part of the dust, very fine in texture, and without body enough to be controlled even by this powerful centrifugal action, which is so light that it remains in suspension and would escape into the room were it not for the very finely woven cloth dust bag or cap placed over the entire cyclone as shown. The bag restrains this very fine residue of dust which in any case is very small in quantity, allowing only the filtered air to escape. Once a month is about the average length of time which might elapse between the cleanings of this bag.

The dust hood can easily be attached to the present wheel guard by any mechanic. The suction pipe is provided with a telescoping feature to permit raising and lowering of the grinding wheel.

Here then is a powerful dust collector, low in cost, to be used for continuous dust collecting duty, occupying about 18 x 30 inches floor space, with small electric current consumption and which may be situated on the floor or mounted on wall or pillar with shelf and shelf brackets. With the Leiman Bros. Dust Collector installed, your surface grinder or other device will remain clean. Without it it will be covered with abrasive dust. Every tool you pick up has that gritty feel. Think of what it means to have all this gritty abrasive dust around when you are trying to make an accurate tool. Think of what that sharp, abrasive dust does to your lungs when you inhale it every day. This is the cause of that dreaded disease called silicosis. Right now the courts are full of lawsuits, started by employees, who have contracted silicosis from working on dusty operations where suitable dust collectors were not installed.

Every type of grinder or dust creating device should be equipped with a Leiman Bros. dust collector, built on the same idea used in our patented polishing and grinding dust collecting outfits which we have been making for half a century.

Here is an outfit that really collects the dust to a practical totality—95% efficient.

Dust collecting protects your workmen, protects the fine work being done on your machines and keeps dust out of all the crevices and moving surfaces of your machine resulting in quicker and better work by more contented workmen—and greatly lengthening the life of the machine itself.

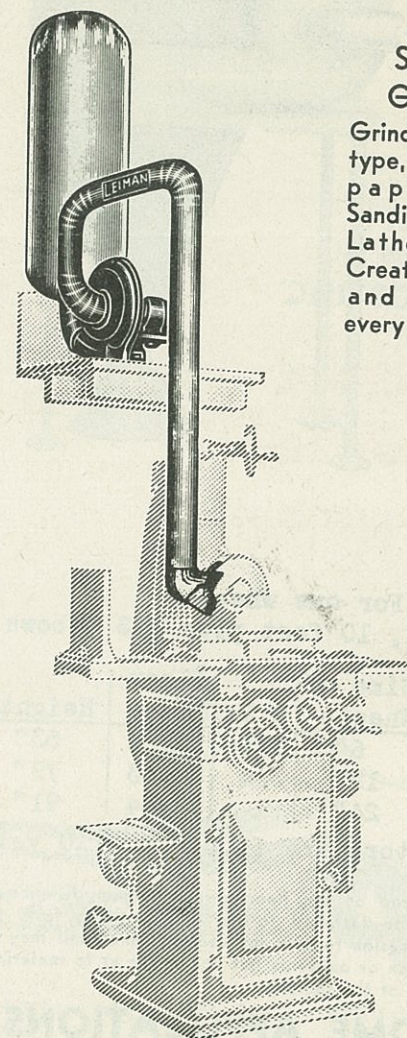
YOUR WORKMEN WORK BETTER AND FASTER

THE INEXPENSIVE ANSWER TO YOUR DUST PROBLEM

LEIMAN BROS., Inc.

LEIMAN BROS.

## New . . . POWERFUL • EFFICIENT • INDIVIDUAL DUST COLLECTOR



### IRRITATING DUST IS DANGEROUS

The great thing is to prevent the operator from breathing into the lungs where it will accumulate. Irritation of the throat passages and eventual disease should be guarded against.

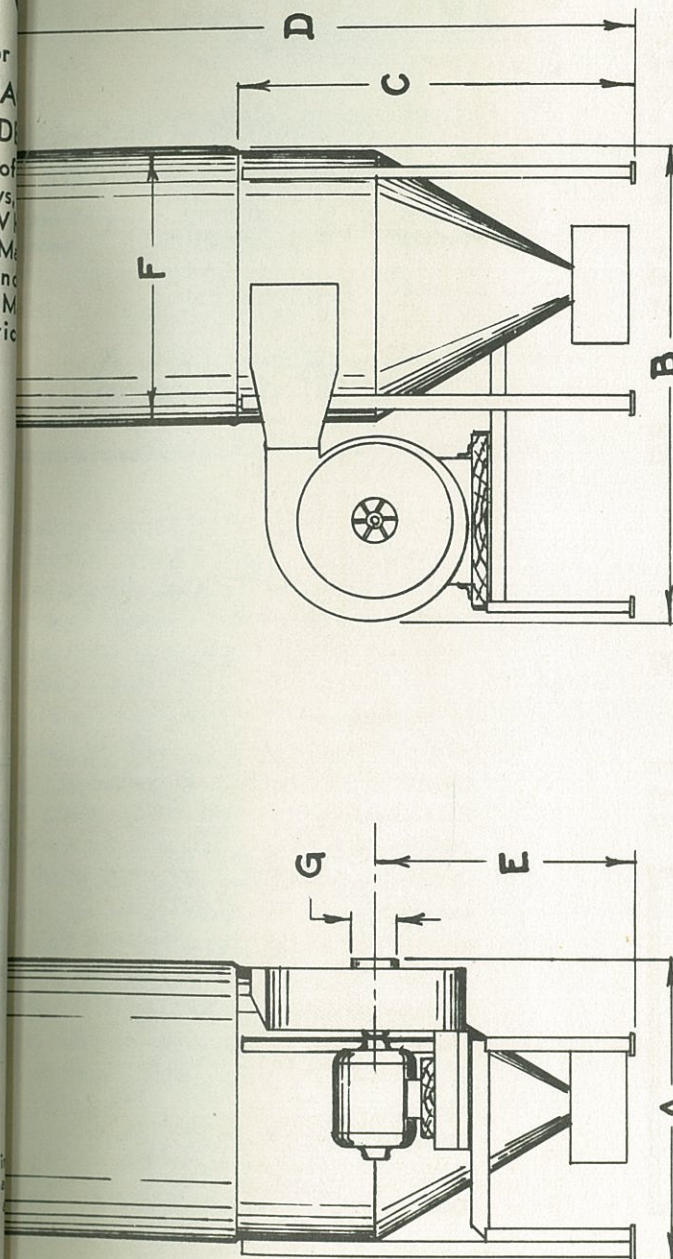
No. B569—For wall or ceiling mounting for 6" wheel.

(With hood, 10 feet of telescoping pipe and 3 elbow blower to hood.)

15" x 17" floor space—1/4 H.P.

For Intermittent Use Only.

for  
SURFACE  
GRINDERS  
Grinders of  
type, Saws,  
paper Wheel  
Sanding Machine  
Lathes and  
Creating Machine  
and Device  
every kind.



SIZE	A	B	C	D	E	F	G INLET	MOTOR HP	SIZE OF INLETS	C.F.M. AIR (APPROX)
G-569	20"	30"	35"	57"	36 1/4"	18"	3"	1/4	1-3"	217
G-569-12	33"	52"	45"	83"	30"	30"	4"	3/4	1-4"	386
G-569-24	40"	60"	55"	97"	39"	36"	5"	1	1-5"	605
GG-569	33"	52"	45"	83"	30"	30"	5"	3/4	2-3"	386
GG-569-12	46"	67"	64"	113"	46"	42"	6"	1 1/2	2-4"	772
GG-569-24	48"	70"	69"	120"	50"	44"	8"	2	2-5"	1210

LEIMAN BROS. INC.  
NEWARK, N. J.



# BLAST THE SURFACE It, Enamel or Plate Will Take Hold , Better and More Enduringly and Blasting Is a / ean, Dry Process.

erous Acids, Pickling and Scratch Brushing  
owing and Many Other Kinds of Goods

	Electrical Goods	Gas Fixtures	Jewelry	Silverwear
	Electric Bulbs	Gears	Machinery	Skates
	Elevators	Glassware	Medals	Suspenders
Tools	Firearms	Hardware	Name Plates	Telephones

RM FINISH WITHOUT BLOTCHES OR  
—CLEANS CASTINGS—REMOVES SCALE

d for producing  
n on all sorts of  
t, brass, copper,  
, also on hard  
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the surface of  
of electroplate,  
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oxidization, is  
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nd bring up its  
for the purpose  
equent finishes,  
bles this later  
h it may cling,

thus doing away with the probability of peeling  
later on.

The tendency of the sand blast, in most cases,  
is to bring out the natural color of the material  
being sand blasted. The surface or the finish  
produced is an erosion of the surface and may  
be very fine and silky or may be rough and  
frosty in effect, depending upon the grade of  
sand, flint, carborundum, crushed steel particles  
or other abrasive used.

Sand blasting is also widely used for stencil-  
ling letters and designs on glass and all of the  
other materials mentioned. This stencilling is  
accomplished by the use of various kinds of  
stencils and there are special machines for doing  
this class of work in addition to the regular  
models.

This work is very easily accomplished by the  
most inexperienced with the best results and  
without any danger of spoiling the work. The  
stencils are usually made of steel, brass, oiled  
cardboard or any other available material de-

pending entirely upon the number of articles  
that are to be stencilled at one time. This process  
lends itself readily to the marking of glasses,  
goblets, electric light bulbs, mirrors, signs and  
window glass. The sand blast may be employed  
for eating into the surface to any depth required  
in this stencilling work.

Nothing can compare with sand blasting on  
castings for cleaning away burnt sand and bring-  
ing out the natural color of the material, and it  
does it very rapidly and gets into every nook and  
corner, whatever the shape or conformation of  
the surface of the article may be.

It is a fast process and often shows a saving as  
high as 75 to 90 per cent in the amount of time  
required to do this work. No manufacturer can  
afford to use any other method in competition  
with the sand blast because of its simplicity and  
cheapness of operation.

In producing a mat or satin finish, uniformity  
is only to be secured with the sand blast. Acid  
dips require experience and scientific care in  
order to produce an even effect from day to day  
as the different strengths of the acid will show  
its effect on the surface of the article and is liable  
to produce blotches and streaks, all of which is  
impossible with the sand blast. The effect is the  
same from day to day and the work cannot be  
spoiled in any manner. One try with the sand  
blast and you produce the best work of which  
the machines are capable and far and away  
better than can be produced by any other  
method. Further than this, the sand blast is not  
only cheaper to use but is safer to use because  
there is no danger as is present in the use of  
acids.

Any finishes that may be produced with a  
scratch brush may be produced much more  
rapidly with a sand blast and without the neces-  
sity of using skilled labor to produce the effect.  
A trial of this method will show what may be  
expected from this highly satisfactory way of  
producing varied and uniform finishes on all  
materials.

The sand blast is, in fact, a great cost-reducing  
tool for manufacturers of any kind of articles.  
There is nothing complicated about sand blast-

ing. It is just as simple as drawing water from a  
faucet and therefore no hesitancy need be ex-  
perienced in adopting this method.

If you are now using the scratch brush or  
dangerous and unreliable acids for any of this  
work, it will pay you to have some of your samples  
sand blasted and see the effect that may be  
produced and see how quickly the work can be  
done and in this way figure out in advance just  
how much you are going to save by the small  
investment in a sand blast outfit.

Ordinary, sharp, white sea sand is the usual  
abrasive used, although the various grades of  
flint may be employed as they are harder and  
last longer than does the sand and produce less  
dust. In any case, a pail of either will last for  
many days of continuous operation, even in the  
largest machines, and it is only necessary to  
replenish the supply gradually as it becomes  
thinned out. For some work, crushed steel parti-  
cles are recommended, although this abrasive  
has a tendency to darken the work more than  
does the sand or flint. It has the advantage, how-  
ever, of lasting almost indefinitely or until the  
particles become dull with use.

The system of piping used is such that it is  
almost impossible to clog up the machine, but if  
this should happen for any reason, all the sand  
may be drained away from the system at the  
bottom of the machine by the removal of a plug  
and then a new supply replaced and the machine  
is all ready for sand blasting again without any  
trouble or expense.

Inside of the cabinet is a screen placed to  
prevent any article from dropping into the bot-  
tom of the sand receptacle, but even if anything  
should find its way there it is quickly recovered  
by simply opening the little door at the bottom  
and removing it, and the sand is quickly re-  
placed, the same as a new supply is introduced  
into the machine through the side doors.

The air supply for operating these machines  
may, when not employed for sand blasting, be  
used for agitating plating solutions or for oper-  
ating gas or oil burning appliances, furnaces,  
blow pipes, etc., so that the investment in one  
of these outfits is a doubly profitable one.

## Better Goods Produced at Lower Prices

An improvement in the appearance of the  
completed product means an increase of profit  
through more sales.

If your present finish is all that you can desire  
—then the sand blast will save you time and  
money in its more effective and quicker appli-  
cation and in improving its enduring qualities—  
you can lower your cost of production with the  
sand blast.

Sand blasting will save you time and money  
in quicker machining of parts, in quicker clean-  
ing, replacing acid dipping and pickling in acid  
finishing and in replacing the more expensive  
and not always uniform scratch brushing.

No matter what you make, no matter what the  
material, investigate how the sand blast can help  
you sell more.

## Costs Little—Results Great

The small first cost is even eclipsed by the  
even smaller cost of operating the sand blast.  
No matter how small your output—no matter  
what you make in metals, wood, all sorts of com-  
positions or glass—there is a place—and a very  
important cost reducing place for the sand blast.

No manufacturer, no matter how small—no  
matter how large or important—can afford to  
ignore the profit-making possibilities of the sand  
blast.

## No Experience Needed for the Best Results

Any boy or girl without previous experience  
or instruction can operate the sand blast and  
get the best results—the only possible results—  
and at the most rapid—the only possible speed  
of production.

## Foot Controls Sand Flow

The cabinet type machine is so constructed  
that the feed of sand is controlled by the oper-  
ator's foot.

A pressure of the foot closes the valve on the  
machine and the abrasive feeds.

As long as the foot is kept on this lever the  
abrasive will continue to feed.

This foot control, feeding the abrasive as it  
does only while the article is underneath the  
stream at the nozzle, saves a great deal of wear  
and tear on the interior of the sand blast machine.

Releasing the air pressure off and on as the



# ER WHAT ARTICLES YOU OR WHAT MATERIAL YOU STIGATE THE SAND BLAST

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out of a window  
of air which is

being pumped into the cabinet in order to operate the sand blast machine is of sufficient force to propel it out through this pipe without the aid of any additional outside force.

The abrasive being used in the machine gradually becomes pulverized in use and then the finer particles will float away with the air through this exhaust pipe and out of the window or up the flue.

In cases where the dust and excess air cannot be led out in this way, then it is customary to run a pipe into a barrel half filled with water and covered with burlap.

The air goes into the barrel depositing the dust in the water and the excess air filters out through the burlap.

We are prepared, however, to furnish a dust collector and disposal device for use with the outfit—if so desired.

When it is required that the sand be removed, it is only necessary to loosen the little plug at the bottom of the machine, and it will run out in a very few seconds, when the plug is replaced and the machine refilled by throwing a new supply of sand through the upper door on the side of the machine.

In using the machine with our air supply, the operator generally uses a pair of cloth gloves, although the blast will not readily injure the hands.

## Standard Iron Pipe Used

The piping system that we employ in the construction of these machines consists only of standard iron pipe and fittings, easily and cheaply procured locally should they require renewal at any time.

Replacement of these parts, however, is very rare and then only after a number of years of steady operation.

No long curved pipes that wear out rapidly by the friction of the driving abrasive are used. (Our short straight pipes are not filled with driving, cutting abrasive, but gently lifted sand—lifted by suction only. At the nozzle it receives the full driving power of the air to apply it directly onto the work. No lost motion or lost power here.)

The standard iron pipe and fittings used mean cheapness to replace, easily procured anywhere when wanted—but best of all with our system of suction feeding to the nozzle, they do not wear out—not for many years.

## The Outfit You Will Need

In using the machine for any given work, it is necessary not only to compare the article with the size of the machine, but also to consider the quantity of work to be done.

A large machine is most always to be preferred even though the work is very small, because the larger the machine, the more rapidly it will do the work.

Most concerns, even though the work is small, use the larger outfits in order to increase production. We also have Automatic Sand Blasts and machines of the hose type

One of the smaller machines would no doubt in most cases do all classes of small work, but it being small, the work is necessarily slower than with the large machines.

## SEND SAMPLES for Sand Blasting

Samples may be sent to us with the following information for the proper selection of a sand blasting outfit.

1. Material of which goods are made.
2. Effect wanted.
3. Quantity to be done.
4. Size and weight of the largest piece of work.
5. Volts, cycles and phase of electric current.

## We Have Machines for All Classes of Work

We will quote on a complete motor driven outfit with air supply all ready to operate on receipt of particulars regarding the volts, cycles and phase of the electric current.

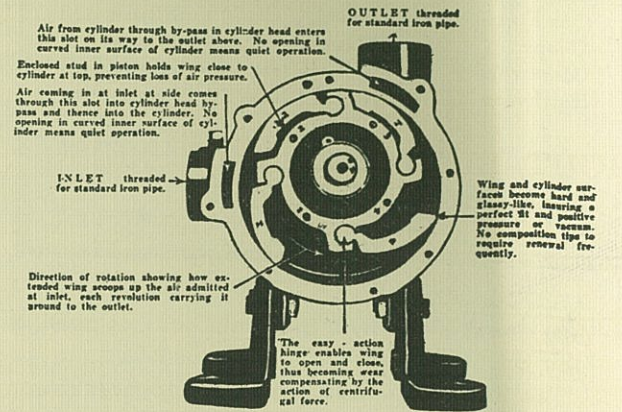
**SAND BLASTING  
IS CLEAN, DRY,  
SAFE and RAPID**

**No More Acids or  
Scratch Brushes  
Required**

## LEIMAN BROS. PATENTED ROTARY POSITIVE AIR PRESSURE • VACUUM GAS BOOSTER PUMPS

For operating Gas Burning Blowpipes, Furnaces, Oil Burners, Paper Feeders, Bottle Fillers, Gas Machines, Atomizing, Agitating Liquids, Vacuum Printing Frames; Printers, Bookbinders, Textile, Paper Goods, and all sorts of special machines and processes.

## Powerful Noiseless Efficient Take Up Their Own Wear



1 to 25 lbs. Pressure—1 to 29 inch Vacuum Mercury. Many Sizes, 1 cubic foot up, air and water cooled. Used by the world's leading concerns in every line of work.

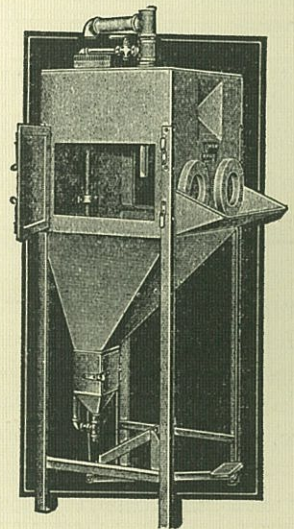
**MACHINERY  
LABORATORY, SHOP and FACTORY  
EQUIPMENT FOR**

JEWELERS • SILVERSMITHS • NOVELTY MAKERS  
• DENTAL LABORATORIES •  
ARTISANS IN METAL, GLASS, CELLULOID,  
BAKELITE and COMPOSITIONS  
COLLEGES • MANUAL TRAINING SCHOOLS

**LEIMAN BROS., INC.** 146 to 181 Christie St.  
NEWARK, N. J.  
LEIMAN BROS. N. Y. CO., 23 Walker St.  
MAKERS OF GOOD MACHINERY FOR 50 YEARS

## AN OUTFIT FOR REDUCING THE COST of PLATING and FINISHING

## LEIMAN BROS. PATENTED CONTINUOUS FEED SAND BLAST



GOODS IN METAL, GLASS COMPOSITION or Other Material may be cheapened in cost and improved in appearance

**LEIMAN BROS., INC.** 146 to 181 Christie St.  
NEWARK, N. J.  
LEIMAN BROS. N. Y. CO., 23 Walker St.  
MAKERS OF GOOD MACHINERY FOR 50 YEARS

**EVERY MANUFACTURER  
OUGHT TO HAVE THIS GREAT  
MANUFACTURING IMPROVEMENT**